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SITE ASSESSMENT REPORT GARY DEVELOPMENT LANDFILL GARY, LAKE COUNTY, INDIANA



Tetra Tech EM Inc. __

SITE ASSESSMENT REPORT GARY DEVELOPMENT LANDFILL GARY, LAKE COUNTY, INDIANA

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY Region 5 Emergency Response Branch 77 West Jackson Boulevard Chicago, IL 60604

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1.0 INTRODUCTION

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) was tasked by the U.S. Environmental Protection Agency (U.S. EPA), under Technical Direction Document (TDD) No. S05-0201-005, to perform emergency response activities followed by a site assessment for the Gary Development Landfill (GDL) site in Gary, Lake County, Indiana. For the site assessment, START was assigned to compile available site information, perform a site inspection, collect samples, procure an analytical laboratory, provide photographic documentation of site conditions, provide a written log documenting all on-site activities, evaluate potential threats to human health and the environment, and prepare this site assessment report.

The site assessment was performed in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Title 40 of the *Code of Federal Regulations* (CFR), Section 300.415(b)(2), to evaluate site conditions and possible threats to human health, public welfare, and the environment. This report discusses site background information, emergency response and site assessment activities, sample analytical results, potential site-related threats, the removal cost projection for remediating the GDL site, and includes a summary of the assessment. In addition, Appendix A contains a photographic log of site features, Appendix B contains a data validation report and validated analytical results for site samples collected by START, Appendix C contains cost estimates for the removal actions to remediate the GDL site, and Appendix D provides a list of witnesses of the site assessment.

2.0 SITE BACKGROUND

This section provides information regarding the description and history of the GDL site.

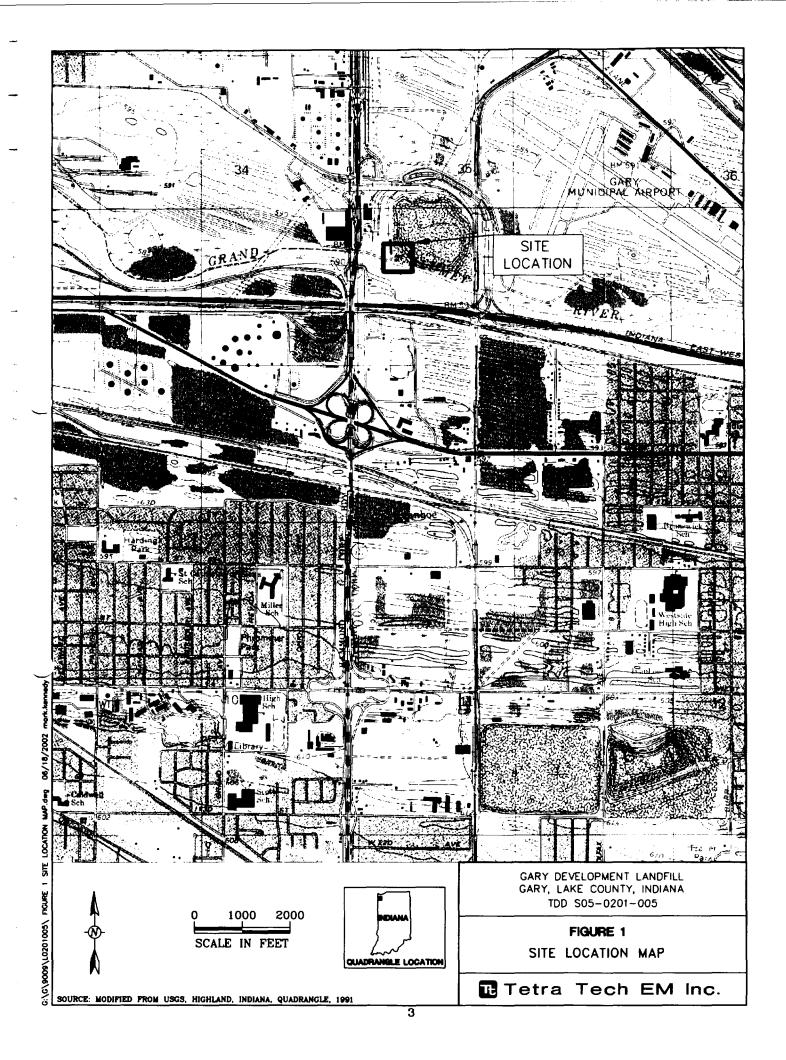
2.1 SITE DESCRIPTION

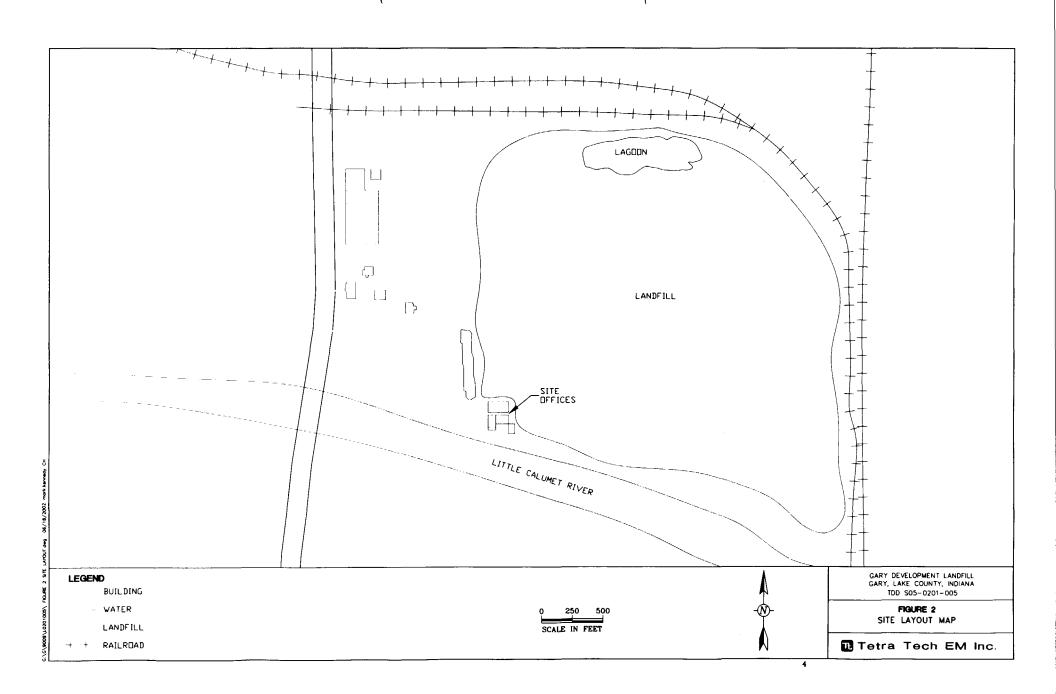
The GDL site is located at 479 North Cline Avenue in Gary, Lake County, Indiana (western ½ of the southwest 1/4 of Section 35, Township 37N, Range 9W)(see Figure 1). The site is a former Gary Development Company facility that includes four abandoned buildings totaling approximately 8,000 square feet, the landfill, and a lagoon situated on the northeast side of the landfill. The site is north of and immediately adjacent to the Grand Calumet River. The area surrounding the site is primarily industrial and commercial. The East Chicago Central Service Facility is located approximately 0.5 mile west of the site. A scrap steel and aluminum recycler is located immediately west of the site. Public access to the site is limited by means of a chain link fence, though signs of trespassing were evident. Figure 2 shows the site layout. The lagoon is known to contain at least 10 to 12 drums and an excavator. The lagoon is a former borrow pit area that has since filled with water. The depth of the water is estimated at approximately 20 feet deep.

2.2 SITE HISTORY

The Gary Development Company operated a nonhazardous landfill until 1988. Although the landfill reportedly operated as a sanitary landfill accepting only commercial and municipal wastes, in 1986 U.S. EPA alleged that the Gary Development Company had operated illegally by accepting hazardous wastes at the landfill. In April 1996, a U.S. EPA administrative law judge concluded that Gary Development Company had accepted hazardous wastes at the landfill and ordered the company to comply with Resource Conservation and Recovery Act (RCRA) closure procedures, post-closure maintenance, and groundwater monitoring requirements at the landfill.

The Indiana Department of Environmental Management (IDEM) continued to conduct periodic inspections at the site and identified several drums at the site on 08 Jan 02. Two of the drums on the south apron of one of the buildings appeared to be leaking. IDEM notified U.S. EPA of the situation on 08 Jan 02 and asked for assistance in stabilizing the drums and performing a site assessment.





3.0 EMERGENCY RESPONSE AND SITE ASSESSMENT ACTIVITIES

Emergency response and site assessment activities are discussed below. Site assessment activities included a site reconnaissance and sampling.

3.1 EMERGENCY RESPONSE ACTIVITIES

On 08 Jan 02, U.S. EPA requested that START conduct emergency response activities at the GDL site. Upon arriving at the site and meeting with U.S. EPA and IDEM personnel, START placed sorbent boom around the two leaking drums identified by IDEM (D-1 and D-2 on Figure 2), as well as downgradient of the drums to prevent the oil-like substance from leaking into the Grand Calumet River. In Level B personal protective equipment (PPE), START personnel then opened the drums and screened them using a photoionization detector (PID). Both of the drums were full. START did not record any readings above normal background conditions in the headspace of the drums. Two samples, D-1 and D-2, were collected for laboratory analyses of disposal characteristics, including flashpoint, semivolatile organic compounds (SVOC), volatile organic compounds (VOC), polychlorinated biphenyls (PCB), target analyte list (TAL) metals, and pH. The drums were staged on site to be overpacked the following day.

On 09 Jan 02, U.S. EPA, START, IDEM, and the Emergency and Rapid Response Services (ERRS) contractor Environmental Quality Management, Inc. (EQM), arrived at the site. ERRS overpacked the two drums sampled the day before and placed oil dry on the concrete pad where the drums had been stored. U.S. EPA requested START to perform a site assessment, including documentation and drum and tank sampling, to characterize the site. The site assessment is described in detail in Sections 3.3, 3.4, and 4.0

3.2 SITE RECONNAISSANCE

On 09 Jan 02, U.S. EPA, START, and ERRS arrived at the site. START conducted a site assessment and identified a total of 29 drums, five aboveground storage tanks (AST), and assorted small containers (see Figure 2). Twenty-four of the drums were identified as either empty or containing frozen material. Many of the drums outside the were in poor condition. During the reconnaissance, drums and tanks were numbered for later sampling. The drums and tanks were labeled chronologically using "D" for drums and "T" for tanks. Drums D-9B and D-15 were found to be leaking. ERRS removed these drums and placed

them in overpack containers for later sampling and disposal. An inventory of items found inside each of the buildings and an AST inventory are provided below.

Building 1. This building housed the Gary Development Company office in the south end, and a storage and service area in the north end. An empty 360-gallon AST was located in the northeast corner of the building. Additional items found in the building is provided below.

- One 1-gallon can of roofing cement
- Twenty 1-gallon latex paint cans
- Two 30-pound cylinders of Freon
- Eight electrical capacitors
- Eight cans of spray paint and spray lubricants
- One 1-gallon container of insecticide powder
- Two 1-quart bottles of household drain cleaner containing sulfuric acid
- One can of starting fluid

In addition, an acetylene cylinder was found outside Building 1.

Building 2. This building may have been used as a service garage. Two drums labeled as containing gear oil (D-12) and transmission fluid (D-13) were located in the southeast corner of the building. Both drums appeared to be in good condition. In addition, two 5-gallon buckets of oil and three 5-gallon buckets of grease were found in the building.

Building 3. This building appeared to have been used mainly as a storage garage, and the south side of the building housed an elevated office. The following small containers were discovered in the northern portion of this building:

- Eight 1-gallon and one 1-quart latex paint cans
- Seven 1-gallon and one 1-quart oil paint cans
- One automotive battery
- One 1-gallon container of liquid insecticide

Building 4. Building 4 was likely used for storage. A total of six drums were located on the east side of the warehouse. Drums D-23 and D-24 contained a total of 53 individual 1-quart containers of automotive

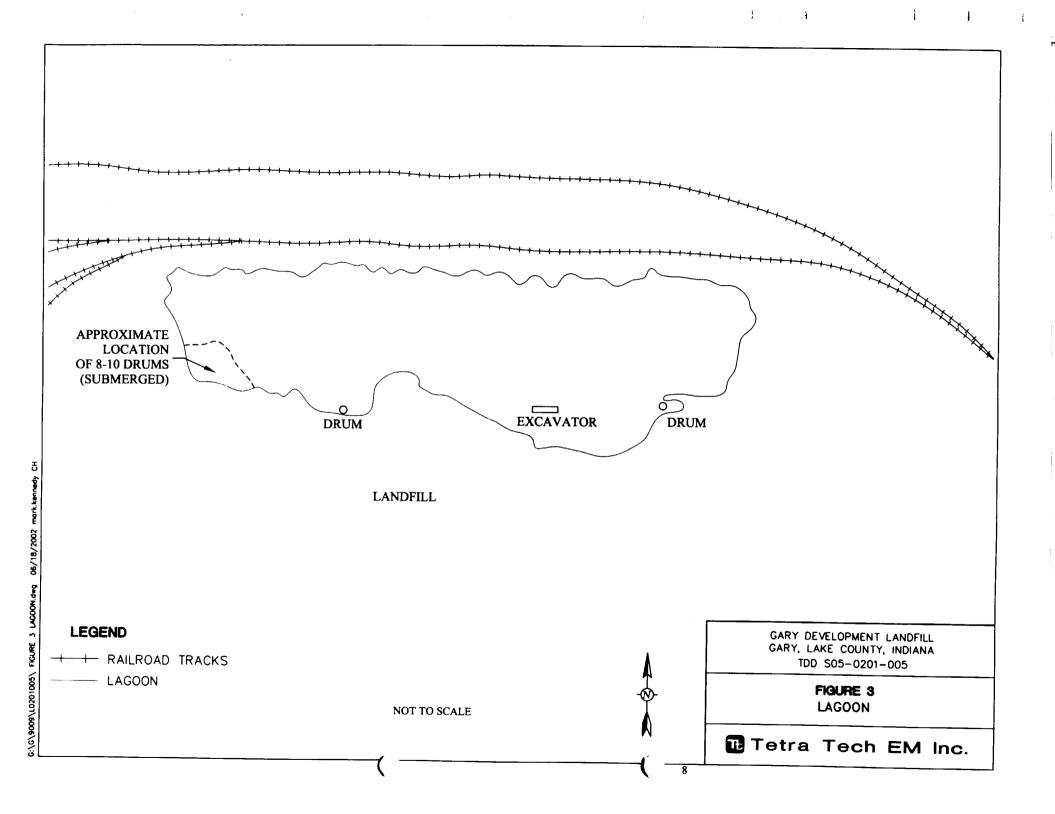
windshield cleaner with antifreeze. Drums D-19 through 22 were stainless steel drums with little to no contents. The west side of the building contained old furniture and assorted debris.

ASTs. During the site reconnaissance, several ASTs were observed. ASTs T-1 and T-5 were former fuel transport trailers and may have been used for fuel storage while Gary Development Company was in operation. Although the trailers were in poor condition, START observed no evidence of stained soils or leaking. AST T-1 was found to be empty and AST T-5 contained a small amount of residual sludge. AST T-2 is the fuel tank for a generator that had been abandoned at the site, and was found to be empty. Staining at the bottom of the tank indicated historical leaking. AST T-3, inside Building 1, was used for water storage and was found to be empty. AST T-4, located between Buildings 1 and 4, was used as a diesel storage tank. The AST was approximately one-eighth full of diesel fuel. There was no evidence of leakage, although the fuel dispensing line showed signs of deterioration. The table below summarizes the ASTs found at the GDL site.

SUMMARY OF ABOVEGROUND STORAGE TANKS

| Tank No. | Capacity (gallons) | Contents | |
|----------|--------------------|-----------------------|--|
| T-1 | 5,500 | Empty | |
| T-2 | 360 | Empty | |
| T-3 | 360 | Empty | |
| T-4 | 360 | <45 gallons of diesel | |
| T-5 | 5,500 | Residual sludge | |

On 04 Apr 02, U.S. EPA, START and IDEM conducted site reconnaissance around the lagoon area north of the landfill (See Figure 3). During the site visit, IDEM pointed out two visible drums and the approximate location of 8-10 other drums to U.S. EPA and START. One visible drum was located near the southeastern bank of the lagoon and appeared to be rusted through. The second visible drum was located at the south-central bank of the lagoon. Another 8 to 10 drums are believed to be completely submerged in the southwestern portion of the lagoon (IDEM observed the drums during a flyover they. The contents of all the drums are unknown.



3.3 SAMPLING ACTIVITIES

To evaluate whether the GDL site poses a threat to human health or the environment, START conducted a sampling event on 09 Jan 02. Four liquid drum samples and one liquid tank sample were collected at the site, in addition to the two liquid drum samples collected on 08 Jan 02. Figure 4 shows the sampling locations. START conducted the sampling event in Level B PPE. Drums that contained frozen material could not be sampled, and were staged for sampling at a later date.

On 19 Feb 02, U.S. EPA, START, and EQ returned to the GDL site to sample the drums that were frozen during the previous sampling event. Samples were characterized and collected by EQ. One composite sample was collected from eight drums and one grab sample was collected from one drum. Table 1 summarizes the drums and AST that were sampled at the GDL site.

On 9 May 02, U.S. EPA and START returned to the GDL site to collect surface water samples from the lagoon located on the northeast side of the site. START used a canoe to survey the lagoon and delineate sample locations. The surface water samples were collected using a Kemmerer sampler from a discrete depth, and basic water quality parameters, including pH, temperature, and conductivity, were measured using a water quality meter. During the event, START observed the drum noted during a previous reconnaissance, and found it to be an empty, crushed polyethylene 55-gallon drum. START also observed the submerged excavator, but could not see any submerged drums due to turbid water conditions. A total of five surface water samples, including one duplicate sample, were collected from the lagoon. The table below provides a summary of the samples and Figure 5 shows the sample locations.

| Sample ID | Sample Depth | pН | Conductivity | Temperature |
|---------------|--------------|------|--------------|-------------|
| GD-SW-0203-01 | 2-3 feet | 8.62 | 3.14 ms/cm | 61.7°F |
| GD-SW-0405-02 | 4-5 feet | 8.99 | 3.62 ms/cm | 60.8°F |
| GD-SW-1213-03 | 12-13 feet | 8.91 | 3.61 ms/cm | 60.9°F |
| GD-SW-0809-04 | 8-9 feet | 8.59 | 3.68 ms/cm | 60.9°F |

Note:

ms/cm

Milliseimen per centimeter

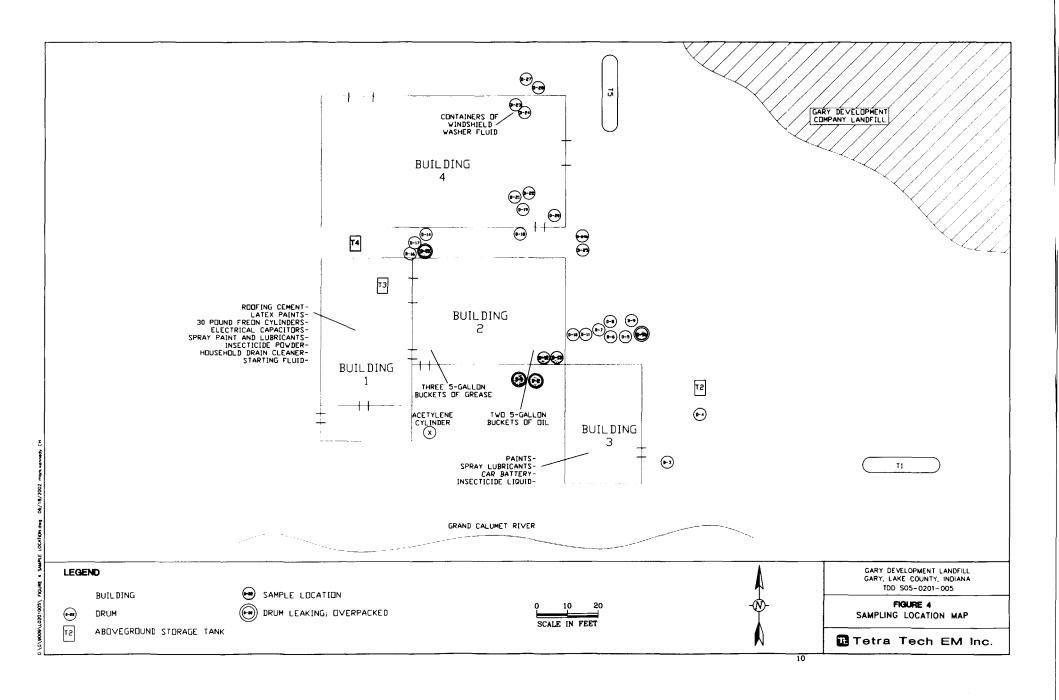
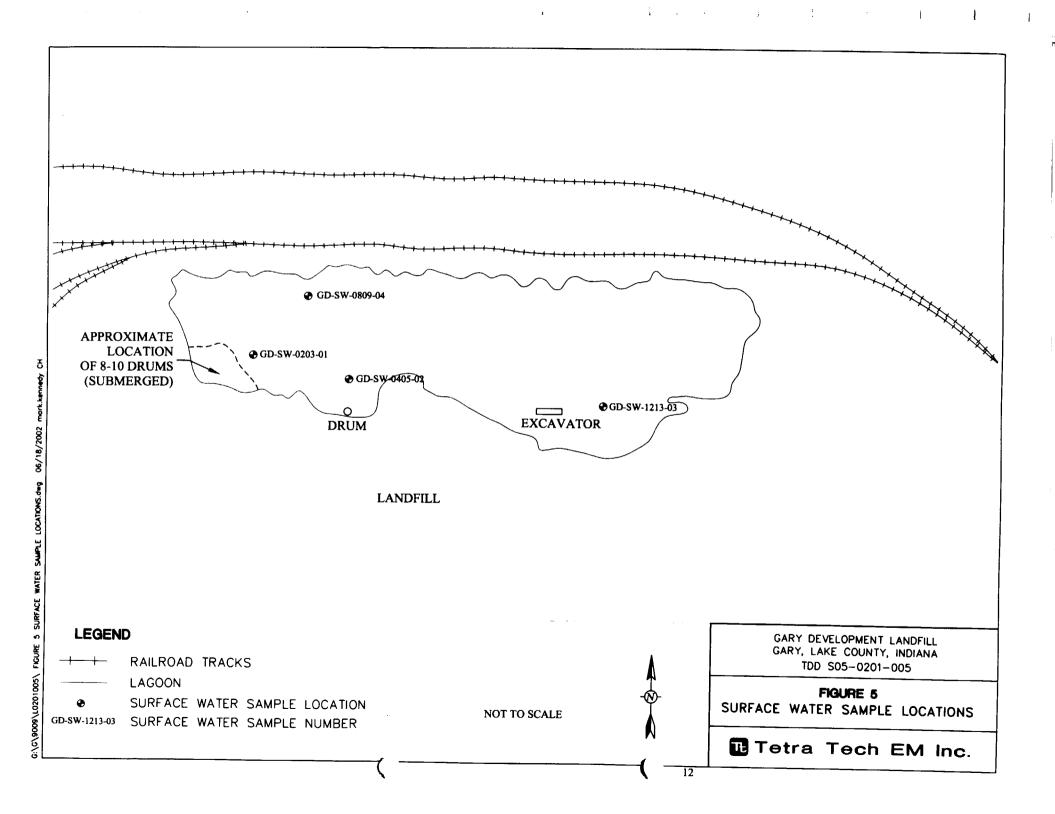


TABLE 1
DRUM AND ABOVEGROUND STORAGE TANK SAMPLE LOG SUMMARY

| Drum or AST No. | Sample Date | Volume Present | Comment |
|-----------------|----------------|----------------|---|
| D-1 | 08 Jan 02 | 55 gallons | Yellow oil-like substance |
| D-2 | 08 Jan 02 | 55 gallons | Yellow oil-like substance |
| D-9B | 09 Jan 02 | 55 gallons | Black oil-like substance |
| D-12 | 09 Jan 02 | 45 gallons | Drum labeled "80-90 WT Gear Oil"; oil-like substance |
| D-13 | 09 Jan 02 | < 10 gallons | Drum labeled "Citgo Power Convertor Transmission Fluid #33802"; an oil-like substance |
| D-15 | 09 Jan 02 | < 20 gallons | Oil-like substance |
| T-4 | 09 Jan 02 | < 50 gallons | Diesel fuel |
| D-3 | 19 Feb 02 | < 10 gallons | Clear liquid/water |
| D-8 | 19 Feb 02 | < 10 gallons | Clear liquid/water |
| D-14 | 19 Feb 02 | < 30 gallons | Clear liquid/water |
| D-16 | 19 Feb 02 | < 20 gallons | Clear liquid/water |
| D-17 | 19 Feb 02 | <10 gallons | Clear liquid/water |
| D-18 | 19 Feb 02 | <20 gallons | Clear liquid/water |
| D-21 | 19 Feb 02 | <10 gallons | Clear liquid/water |
| D-25 | 19 Feb 02 | <20 gallons | Clear liquid/water |
| D-28 | 19 Feb 02 | <10 gallons | Yellow liquid |



4.0 ANALYTICAL RESULTS

The drum and tank samples collected on 08 Jan 02 and 09 Jan 02 were packed on ice and shipped to Great Lakes Analytical Laboratory in Buffalo Grove, Illinois for laboratory analyses under analytical TDD No. S05-0201-006. The samples were then analyzed for PCBs, VOCs, SVOCs, TAL metals, flashpoint, and pH. START obtained laboratory analytical results for the six liquid drum samples and one liquid tank sample collected at the GDL site. The two drum samples collected on 19 Feb 02 were sent to Severn Trent Services in University Park, Illinois for laboratory analyses under the same analytical TDD. The samples were then analyzed for PCBs, reactive cyanide, pH, flashpoint, TAL metals, SVOCs, VOCs, total organic halides, and British Thermal Unit (BTU) analysis. The surface water samples collected from the lagoon on 09 May 02 were also sent to Great Lakes Analytical Laboratories, under the same analytical TDD. The samples were then analyzed for PCBs, VOCs, SVOCs, and TAL metals. Analytical parameters for all of the samples were chosen based on the criteria for identification of hazardous waste set forth in 40 CFR Part 261, as well as general disposal criteria. The data validation report and validated analytical results are presented in Appendix B. Analytical results for the drum and tank samples with at least one detection of the analytical parameters are summarized in Table 2, and analytical results for the second round of drum samples are summarized in Table 3. Table 4 summarizes analytical results of the surface water samples. Significant analytical results are also discussed below.

Although none of the sample analytical results from drum samples collected on 08 and 09 Jan 02 met or exceeded criteria set forth in 40 CFR Part 261 for hazardous waste, significant levels of various VOCs and SVOCs were detected in the samples. VOCs detected included benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds), and SVOCs detected included anthracene, butyl benzyl phthalate, fluorene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene. The compounds detected in the drum samples are consistent with waste oils, and the compounds detected in AST sample T-4 are consistent with diesel fuel.

While trace levels of metals, VOCs and SVOCs were detected in drum samples D3-25 and D-28 collected on 19 Feb 02, no sample analytical results met or exceeded criteria set forth in 40 CFR Part 261 for hazardous waste. However, sample D3-25 had a flashpoint of 80 degrees F, qualifying it as a characteristic hazardous waste.

Trace levels of metals were detected in the surface water samples collected on 09 May 02, though none of the analytical results met or exceeded regulatory criteria used by the U.S. EPA for surface water direct contact exposure or surface water/groundwater interface criteria.

TABLE 2 SUMMARY OF DRUM SAMPLE ANALYTICAL RESULTS 08-09 JAN 02

| | Sample No. | | | | | | |
|------------------------|--|-----------------|--------------|-------------|-----------|------------|------------------|
| Analytical Parameter | D-1 | D-2 | D-9B | D-12 | D-13 | D-15 | T-4 |
| Total metals (mg/L) | The state of the | | | | | 机械的 | MARKET C |
| Aluminum | ND | ND | ND | ND | 0.547J | ND | ND |
| Antimony | 0.135J | 0.101J | ND | ND | ND | ND | ND |
| Arsenic | ND | ND | ND | 0.114J | ND | ND | ND |
| Cadmium | 0.161J | ND | ND | ND | ND | ND | ND |
| Calcium | 31.0J | 750J | 10.5J | 3,66J | 1.420J | 32.7J | ND. |
| Chromium (total) | ND | ND | 0.0491J | 0.0534J | ND | ND | ND |
| Copper | ND | 0.0853J | 0.481J | 0.616J | ().343J | ND | 0.0745J |
| Iron | ND | 7.91J | 7.93J | ND | ND | ND | ND |
| Lead | 0.600J | 0,0963J | 6.33J | ND | 0.115J | ND | ND |
| Magnesium | ND | 2.44J | 19.4J | ND | 4.21J | ND | ND |
| Manganese | ND | 0.187J | ND | ND | 0.122J | ND | ND |
| Mercury | 0.000512J | ND | 0.00104J | ND | ND | ND | ND |
| Nickel | ND | ND | ND | 1,000,0 | ND | ND | ND |
| Potassium | ND | 4.68J | 5.25J | ND | 8.34J | 66.3J | 3.611 |
| Selenium | ND | ND | 0.0583J | ND | ND | ND | ND |
| Sodium | 1.91J | 7.46J | 9.46J | 3.95J | 18.0J | ND | 0.731J |
| Thallium | ND | ND | ND | ND | 0.116J | 1.59J | ND |
| Zinc | 300J | 461J | 45.8J | 5.80J | 593J | 56.3J | 1.39J |
| VQCs(up/kg) | tion in the second | e de la company | | rw. 20 | ant med | e de la | And the state of |
| Benzene | 1,860J | ND | 2,510J | ND | ND | ND | ND |
| Ethylbenzene | ND | 162J | 13,400J | ND | 360J | ND | 53,000J |
| Toluene | ND | 4,690J | 19,600J | 66,700J | 10,9001 | ND | 47,200J |
| Xylenes (total) | 384J | 892J | 53,000J | 4,450J | 1,930J | ND | 348,000J |
| SVOCs (µg/kg) | The second secon | | | | | Par (2, %) | 1 |
| Anthracene | ND | ND | ND | ND | ND | ND | 67,400J |
| Butyl benzyl phthalate | ND | 2,990,000 | ND | ND | 2,930,000 | ND | ND |
| Fluorene | ND | ND | ND | ND | ND | ND | 227,000J |
| 2-Methylnaphthalene | ND | ND | 202,000 | ND | ND | ND | 6,020,000, |
| Naphthalene | ND | ND | 53,000 | ND | ND | ND | 2,080,000, |
| Phenanthrene | ND | ND | 59,200 | ND | ND | ND | 939,000J |
| Pyrene | ND | ND | ND | ND | ND | ND | 397,000.1 |
| Physical Properties | entire of mentions | rith at Const | i i sanda ka | Ber William | | | |
| pH (standard units) | 7.14 | 7.11 | 6.67 | 6.83 | 6.83 | 6.50 | 6.45 |
| Flashpoint (degrees F) | >220 | >220 | 161 | 191 | >22() | 171 | 181 |

Notes:

J = Estimated value VOC = Volatile organic mg/L = Milligram per liter von compound

ND = Not detected µg/kg = Microgram per kilogram

SVOC = Semivolatile organic

compound

TABLE 3 SUMMARY OF SAMPLE ANALYTICAL RESULTS 19 FEB 02

| | Sample | Sample No. | | |
|------------------------|-------------------------|------------|--|--|
| Analytical Parameter | D3-25 Comp | D-28 | | |
| Total metals (mg/L) | A STATE OF THE STATE OF | | | |
| Aluminum | 0.0971 | NA | | |
| Barium | 0.0299 | NA | | |
| Calcium | 32.1 | NA | | |
| Chromium (total) | 0.440 | NA | | |
| Cobalt | 0.0063 | NA | | |
| Copper | 0.0222 | NA | | |
| Iron | 2.22 | NA | | |
| Lead | 0.0065 | NA | | |
| Magnesium | 6.48 | NA | | |
| Manganese | 0.276 | NA | | |
| Nickel | 0.277 | NA | | |
| Potassium | 3.54 | NA | | |
| Selenium | 0.0021 | NA | | |
| Sodium | 18.5 | NA | | |
| Zinc | 0.582 | NA | | |
| VOCs (µg/L): ****** | G arage Carlo | Maria 新聞 | | |
| Acetone | 1,300 | NA | | |
| Toluene | 11 | NA | | |
| SVOCe((µg/L)) | A CONTRACTOR | neitest er | | |
| Benzoic acid | 1,600 | NA | | |
| Benzyl alcohol | 8,300 | NA | | |
| Diethyl phthalate | 12,000 | NA | | |
| Physical Properties | | | | |
| pH (standard units) | 6.53 | NA | | |
| Flashpoint (degrees F) | 80 | 120 | | |
| BTU/lb | NA | 19,250 | | |
| TOX | NA | 420 | | |

Notes:

BTU = British thermal unit mg/L = Milligram per liter NA = Not analyzed

TOX = Total organic halides, as chlorine

 $\mu g/L$ = Microgram per liter

TABLE 4
SUMMARY OF SURFACE WATER SAMPLE ANALYTICAL RESULTS
09 MAY 02

| | Sample No. | | | | | |
|--------------------|-----------------|-------------------|---------------|---------------|---------------|--|
| Analytical | GD-SW-0203-01 | GD-SW-0203-01D | GD-SW-0405-02 | GD-SW-1213-03 | GD-SW-0809-04 | |
| Parameter | 010 311 0203 01 | 010 011 0200 0110 | | | | |
| Total metals (mg/L |) XXXX | | | | | |
| Calcium | 39.3 | 39.2 | 39.2 | 38.5 | 39,2 | |
| Chromium (total) | ND | ND | 0.0129 | ND | ND | |
| Copper | 0.0998 | 0.0717 | ND | NĐ | ND | |
| Iron | 0.260 | 0.253 | 0.258 | 0.339 | 0.323 | |
| Lead | 0.00938 | 0.00647 | ND | ND | ND | |
| Magnesium | 108 | 107 | 107 | 107 | 108 | |
| Manganese | 0.0752 | 0.0741 | 0.0713 | 0.130 | 0.0788 | |
| Mercury | 0.000368 | ND | ND | ND | ND | |
| Nickel | ND | ND | ND | 0.0581 | ND | |
| Potassium | 135 | 132 | 134 | 135 | 135 | |
| Sodium | 794 | 787 | 784 | 793 | 788 | |

Notesi

mg/L = Milligram per liter ND = Not detected

5.0 POTENTIAL SITE-RELATED THREATS

Paragraph (b)(2) of 40 CFR Section 300.415 lists factors to be considered when determining the appropriateness of a potential removal action at a site. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) applies to the hazardous substances at the GDL site, and the Oil Pollution Act of 1990 (OPA) applies to nonhazardous petroleum-related wastes at the GDL site. Section 2702 of Title I of OPA establishes the liability of responsible parties for removal costs and damages caused by oil spills and discharges into navigable waterways. Subsection (b)(2) of Section 2702 outlines the damages covered under OPA.

Factors outlined in 40 CFR Section 300.415 that are applicable to the GDL site are discussed below, followed by a summary of threats related to the GDL site under OPA.

CERCLA Threats

• Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants: Hazardous substances and pollutants found at the GDL site include electrical capacitors (that may contain PCBs), insecticides, flammable liquids, and acidic liquids, as well as oil wastes containing low levels of BTEX compounds and polynuclear aromatic hydrocarbons (PAH), which include anthracene, fluorene, napthalene, and pyrene. Many of these substances are present in deteriorating drums. Hazardous substances and pollutants in soil at the GDL site would pose threats to site visitors and wildlife. During the site assessment, START observed evidence of trespassing and also encountered several dogs inside one of the buildings. In addition, hazardous substances and pollutants discharging into the Grand Calumet River from the GDL site would pose threats to wildlife in or near the waterway.

Bendiocarb, the active ingredient in the insecticide powder found at the GDL site, is an extremely toxic substance. It has received the U.S. EPA's Acute Toxicity Category I rating for oral exposure, which is the highest rating. Animal studies have shown that bendiocarb inhibits cholinesterease activity in the blood, plasma, and brain. The chemical has been shown to degrade rapidly and is soluble in water

According to the Agency for Toxic Substances and Disease Registry (ATSDR) and Department of Health and Human Services, certain PAHs are suspected carcinogens. According to animal studies, PAHs can have harmful effects on skin, on body fluids, and on the ability to fight disease. Acute exposure to napthalene has been shown to destroy red blood cells, as well as cause fatigue, nausea, diarrhea, restlessness, blood in urine, and vomiting.

Exposure to BTEX compounds has also been shown to cause adverse health effects. Inhalation of elevated levels of BTEX compounds has been shown to damage the central nervous system and cause nausea, dizziness, confusion, and throat and eye irritation. Benzene is a widely used chemical formed by both natural processes and human activities. Breathing benzene vapor can cause drowsiness, dizziness, and unconsciousness. Long-term benzene exposure has adverse effects on the bone marrow and can cause anemia and leukemia. Ethylbenzene is a chemical that can be found in gasoline and paints. Breathing ethylbenzene can dizziness and throat and eye irritation. Toluene is a chemical that is often used as a solvent in paints and adhesives. Exposure to toluene has been shown to affect the central nervous system. Xylene is a chemical that can be found in gasoline, paint, and paint thinners. Inhalation of elevated levels of xylenes can cause loss of balance, dizziness, and confusion.

The electrical capacitors found at the GDL site are suspected to contain PCBs. PCBs are a mixture of chemicals that have historically been used as coolants and lubricants, specifically in electrical capacitors. The commercial use of PCBs was stopped in 1970 due to concern of detrimental health effects and their accumulation in the environment. According to ATSDR, health effects associated with chronic exposure to PCBs include liver damage, immune system damage of breastfeeding children, and memory and motorskill loss of breastfeeding children. PCBs have been shown to accumulate in fish tissue and remain in the foodchain.

Actual or potential contamination of drinking water supplies or sensitive
ecosystems: As discussed above, the GDL site is bordered on the south by the Grand
Calumet River, supports sensitive aquatic and riparian ecosystems. Hazardous
substances and contaminants discharging into the waterway from the site would pose

threats to these and surrounding ecosystems and impact the overall downstream water quality.

Weather conditions that may cause pollutants or contaminants to migrate or be
released: Many of the contaminants present at the GDL site are located in drums that are
stored outside. Precipitation and weathering have deteriorated many of the drums, which
could result in off-site migration of contaminants to the Grand Calumet River.

OPA Threats

• Natural Resources: OPA was created to prevent and respond to oil spills in the nation's navigable waterways. It also covers damages to natural resources. According to OPA, natural resources include land, fish, wildlife, biota, air, water, groundwater, drinking water supplies, and other resources. Petroleum products are stored at the GDL site in deteriorating drums and ASTs. The potential exists for these contaminants to be released from the site to the Grand Calumet River, a navigable waterway. By removing the OPA regulated wastes from the GDL site, potential impacts to the Grand Calumet River and its associated natural resources can be mitigated.

6.0 REMOVAL COST PROJECTION

Sample analytical results indicate the presence of hazardous substances and petroleum products at the GDL site. Many of the drums containing petroleum products are deteriorating and pose a threat of release. Drums have been observed in the lagoon, although the contents are unknown. In addition, an AST in poor condition contains approximately 45 gallons of diesel fuel. Based on the NCP and OPA, the contaminants present on site pose a threat to both human health and the environment. Mitigation of threats to human health and the environment at the GDL site should include (1) removal of drums of nonhazardous special waste and assorted small containers of hazardous substances and (2) crushing and disposal of empty drums and ASTs.

A cost estimate has been prepared for disposal of contaminants present at the GDL site (see Appendix C) and performing water sampling and a hydrographic survey of the lagoon. The cost estimate was generated using the Removal Cost Management System (RCMS) 2000 software program (Version 1.2), R.S. Means Company environmental remediation cost data, and consultation with a marine diving consultant. The proposed removal action includes the following tasks:

- Hazard categorize and sample the remaining nine unsampled drums (contents frozen during the site assessment)
- Arrange for transport and disposal of overpacked drums, lab packs, and other small containers
- Crush all empty drums and ASTs containing OPA-regulated wastes
- Arrange for transport and disposal of crushed drums and ASTs
- Decontaminate all equipment.

These activities are estimated to require 5.5 10-hour work days and to cost approximately \$26,950.27

While the CERCLA and OPA removal may be conducted concurrently, the tasks and costs have been separated for CERCLA and OPA regulated wastes, as discussed below.

Removal Cost Estimate for CERCLA-Regulated Wastes

Removal of the CERCLA-regulated wastes at the GDL site would involve the disposal of all small containers of hazardous waste present at the site. An estimated 10 waste streams will be generated from

the small containers, and these will be disposed of as lab pack containers. The disposal estimate for these containers is \$65.00 each.

The work is expected to require 1.5 10-hour workdays. Activities will include site mobilization, hazard categorization of the small containers to identify individual waste streams, containerization of the small containers in lab packs, and transport and disposal of the lab packs. Included in the cost estimate are 10 55-gallon drums that will be used for lab packs. A crew of two cleanup technicians and a response manager was assumed in order to estimate the costs. Government costs were based on the hours required for personnel including one OSC and one START member for the length of the removal action. The total cost for the removal of CERCLA-regulated wastes is estimated to be \$6,907.37 (See tables C-1 and C-2 in Appendix C).

Removal Cost Estimate for OPA-Regulated Wastes

Removal of the OPA-regulated wastes at the GDL site would involve the disposal of all oil-related wastes present at the GDL site. These wastes include drums with contents, recovered diesel from AST T-4, and crushed empty drums and ASTs. For the purposes of this cost estimate, the nine unsampled drums are included as OPA-regulated wastes. The disposal estimate for the overpacked drums is \$65.71 each, and the disposal estimate for the crushed drums and ASTs is \$30.00 per ton.

The work is expected to require 4 10-hour work days. Activities will include site mobilization, overpacking the drums with contents, recovering the diesel from AST T-4, sampling the remaining nine drums that have not been sampled, staging and crushing the empty drums and ASTs, transportation and disposal of overpacked drums, and disposal of crushed drums and ASTs. Included in the cost estimate are 11 85-gallon overpack drums and a roll-off box used for disposal of the crushed drums and ASTs. A crew consisting of two cleanup technicians, one equipment operator (for 1 day), and a response manager was assumed in order to estimate costs. Government costs were based on the hours required for personnel including one OSC and one START member for the duration of the removal action. The total costs for the removal of OPA-regulated wastes is estimated to be \$20,042.90 (See tables C-3 and C-4 in Appendix C).

7.0 SUMMARY

The GDL site is located in a primarily industrial and commercial area in Gary, Lake County, Indiana. The Grand Calumet River borders the site to the south. Drums and ASTs in degraded condition are present at the site inside the buildings as well as throughout the site property, including the lagoon on the north side of the landfill. During the site assessment, START observed that some of theses drums were leaking. START also conducted a reconnaissance and surface water sampling event in the lagoon located on GDL site. There are reportedly several submerged drums in the western portion of the lagoon, though due to turbid water conditions START was not able to confirm this. The surface water sample analytical results did not indicate the presence of significant concentrations of contaminants in the lagoon. However, analytical results for samples collected from the drums and AST are consistent with petroleum products. In addition, small containers of hazardous materials were observed at the site. Therefore, the site meets the criteria for a removal action outlined in 40 CFR Section 300.415(b)(2) and Section 2702 of Title Lof OPA.

APPENDIX A PHOTOGRAPHIC LOG

(Four Pages)



Photograph No.:

1

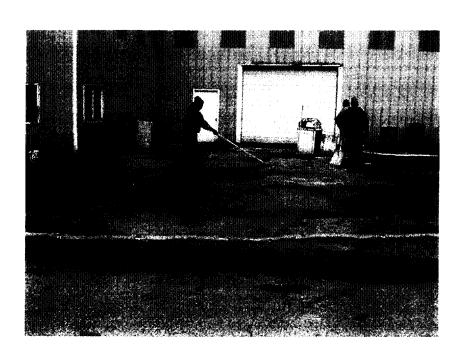
S05-0201-005

Location: Subject:

TDD No.:

Gary Development Landfill (GDL) site

Two drums (left) initially found to be leaking



Photograph No.:

2

Orientation:

Date:

Orientation:

Date:

North

08 Jan 02

North 08 Jan 02

TDD No.:

S05-0201-005

Location: Subject:

GDL site

Emergency and Rapid Response Services (ERRS) crew using oil-dry to

decontaminate area where drums had leaked



Photograph No.:

3

TDD No.:

S05-0201-005

Location:

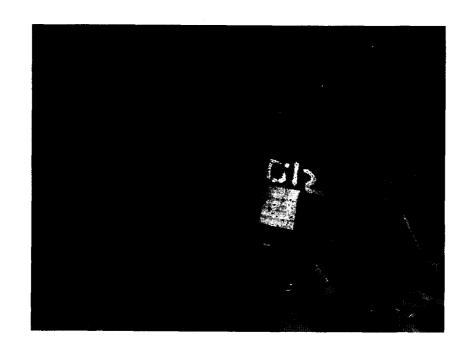
GDL site

Subject:

Drum containing oil on the east side of the site

Orientation: Date:

Northeast 08 Jan 02



Photograph No.:

TDD No.:

S05-0201-005 Location:

Subject:

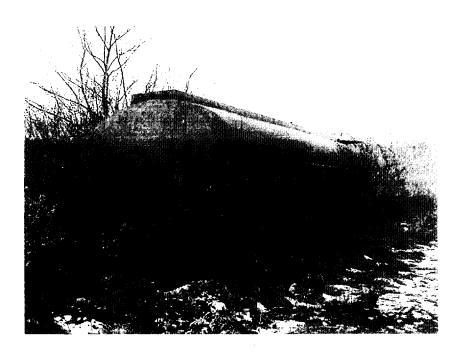
GDL site

Drums containing oil inside Building 2

Orientation: Date:

South 08 Jan 02

Tetra Tech EM Inc.



Photograph No.:

5

Orientation:

Date:

Southwest 08 Jan 02

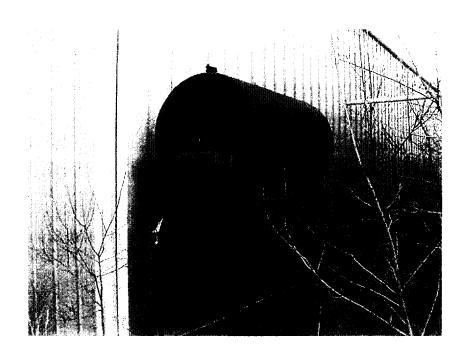
TDD No.:

S05-0201-005

GDL site

Location: Subject:

Empty fuel tank located on service drive adjacent to the Grand Calumet River



Photograph No.:

6

Orientation:

Date:

Northeast 08 Jan 02

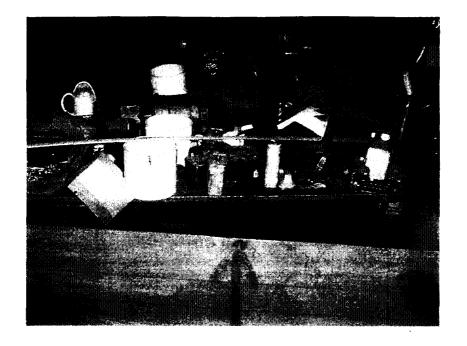
TDD No.: Location:

S05-0201-005

GDL site

Subject:

Tank containing approximately 45 gallons of diesel fuel



Photograph No.:

7

TDD No.:

S05-0201-005

Location:

GDL site

Subject:

Electrical capacitors (at front of table above arrow) inside Building 1

Orientation:

Orientation:

Date:

North

08 Jan 02

Date:

North

08 Jan 02



Photograph No.:

8

TDD No.:

S05-0201-005

Location:

GDL site

Subject:

Paint cans and household cleaners inside Building 1

APPENDIX B

DATA VALIDATION REPORT AND VALIDATED ANALYTICAL RESULTS

(86 Pages)



200 E. Randolph Drive, Suite 4700 ♦ Chicago, IL 60601 ♦ (312) 856-8700 ♦ FAX (312) 938-0118

MEMORANDUM

Date:

04 Feb 02

To:

Brad White, Project Manager, Tetra Tech EM Inc. (Tetra Tech)

Superfund Technical Assessment and Response Team (START) for Region 5

From:

Lisa Graczyk, Chemist, Tetra Tech START for Region 5

Subject:

Data Validation for

Gary Development Landfill Site

Gary, Indiana

Analytical Technical Direction Document (TDD) No. S05-0201-006

Project TDD No. S05-0201-005

Laboratory: Great Lakes Analytical (GLA), Buffalo Grove, Illinois

Work Order No. B201120

Total Metal, Volatile Organic Compound (VOC), Semivolatile Organic Compound (SVOC), Polychlorinated Biphenyl (PCB), Flash Point, and pH Analysis of Seven Waste Samples

1.0 INTRODUCTION

Tetra Tech START for Region 5 validated total metal, VOC, SVOC, PCB, flash point, and pH analytical data for seven waste samples collected on 08 and 09 Jan 02 from the Gary Development Landfill site in Gary, Indiana. The samples were analyzed under the above-referenced work order by GLA using U.S. Environmental Protection Agency (U.S. EPA) SW-846 Methods 6010B, 7470A, and 7421 for total metal analysis; 8260B for VOC analysis; 8270C for SVOC analysis; 8082 for PCB analysis; and 9040B for pH analysis and using American Society for Testing and Materials (ASTM) Method D93-85 for flash point analysis.

The data were validated in general accordance with U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Organic Data Review" dated Oct 99 and "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated Feb 94. Organic data validation

Data Validation for

Gary Development Landfill Site

Analytical TDD No. S05-0201-006 Project TDD No. S05-0201-005

Page 2

: [

consisted of a review of the following quality control (QC) parameters: holding times, instrument

performance checks, initial and continuing calibrations, blank results, surrogate results, matrix spike and

matrix spike duplicate (MS/MSD) results, laboratory control sample (LCS) results, internal standard (IS)

area counts, and target compound identification. Inorganic data validation consisted of a review of the

following QC parameters: holding times, initial and continuing calibrations, blank results, LCS results,

interference check sample (ICS) results, and MS/MSD results.

Section 2.0 discusses the results of the organic data validation, Section 3.0 discusses the results of the

inorganic data validation, and Section 4.0 presents an overall assessment of the data. The attachment to

this memorandum contains GLA's summary of analytical results as well as START's handwritten data

qualifications where warranted.

2.0 ORGANIC DATA VALIDATION RESULTS

The results of START's organic data validation are summarized below in terms of the QC parameters

reviewed. The data qualifier below was applied to the sample analytical results where warranted (see the

attachment).

J - The compound was detected. The reported numerical value is considered to be

estimated for QC reasons.

2.1 HOLDING TIMES

The samples were analyzed within the holding time limits of (1) 14 days to extraction and 40 days from

extraction to analysis for SVOCs and PCBs and (2) 14 days to analysis for VOCs.

Data Validation for Gary Development Landfill Site Analytical TDD No. S05-0201-006 Project TDD No. S05-0201-005 Page 3

2.2 INSTRUMENT PERFORMANCE CHECKS

The decafluorotriphenylphosphine and bromofluorobenzene instrument performance checks met the QC abundance criteria for the SVOC and VOC analyses, respectively. The chromatographic resolution was adequate for the PCB analysis.

2.3 INITIAL AND CONTINUING CALIBRATIONS

For the VOC and SVOC analyses, the relative standard deviation (RSD) from the initial calibration result was less than or equal to the QC limit of 30 percent for the target compounds detected. The continuing calibration results were less than or equal to the QC limit of 25 percent difference between the initial calibration relative response factor and the continuing calibration relative response factor for the target compounds detected.

For the PCB analysis, the initial calibration result was within the QC limit of less than or equal to 20 percent RSD for the average of the five calibration factors (CF) for a single Aroclor. The continuing calibration standards were within the QC limit of less than or equal to 15 percent difference between the mean CF for the initial calibration curve and the CF for the continuing calibration.

2.4 BLANK RESULTS

A method blank was run with the analytical batch in the proper sequence. No target compounds were detected in the blank for the VOC, SVOC, or PCB analysis.

Data Validation for Gary Development Landfill Site Analytical TDD No. S05-0201-006 Project TDD No. S05-0201-005 Page 4

2.5 SURROGATE RESULTS

For the VOC analysis, the results for three of the four surrogates in each sample were outside the laboratory-established QC limits; therefore, all positive sample results for VOCs were flagged "J" as estimated. For the SVOC analysis, the results for two base/neutral surrogates in sample T-4 were outside the laboratory-established QC limits; therefore, positive base/neutral SVOC results for sample T-4 were flagged "J" as estimated. Recoveries for the surrogates were within the QC limits specified by the laboratory for the PCB analysis.

2.6 MS/MSD RESULTS

MSs and MSDs were not analyzed during the organic analyses. No qualifications were applied for this data gap.

2.7 LCS RESULTS

For the VOC analysis, LCS recoveries were within the QC limits specified by the laboratory except for the following compounds: chloromethane; 1,1-dichloroethane; 1,1-dichloroethene; cis-1,2-dichloroethene; trans-1,2-dichloropropene; methylene chloride; and vinyl chloride. Because these compounds were not detected in the samples, no qualifications were warranted.

No LCS was analyzed during the SVOC analysis. However, GLA analyzed a duplicate of sample D13. The relative percent difference between the duplicate result and the sample result was 2.42 percent, which is acceptable.

For the PCB analysis, LCS recoveries were within the QC limits specified by the laboratory.

Data Validation for Gary Development Landfill Site Analytical TDD No. S05-0201-006 Project TDD No. S05-0201-005 Page 5

For the flash point analysis, the laboratory instrument was checked using a p-xylene standard, and it generated a measurement of 81.4°F as the flash point. The flash point of p-xylene is approximately 81°F; therefore, the instrument appears to have been working properly. This check is the only QC parameter that applies to the flash point analysis.

2.8 IS AREA COUNTS

For the VOC and SVOC analyses, the IS area counts were within the QC limits of -50 to +100 percent of those for the calibration standard. The retention times for the ISs were within the QC limit of \pm 30 seconds. IS area counts do not apply to the PCB analysis.

2.9 TARGET COMPOUND IDENTIFICATION

A spot-check of the chromatograms for the VOC, SVOC, and PCB analyses confirmed the target compound identifications for the samples.

3.0 INORGANIC DATA VALIDATION RESULTS

The results of START's inorganic data validation are summarized below in terms of the QC parameters reviewed. The data qualifiers below were applied to the sample analytical results where warranted (see the attachment).

- J The analyte was detected. The reported numerical value is considered to be estimated for QC reasons.
- UJ The analyte was not detected. The reported sample detection limit is considered to be estimated for QC reasons.

Data Validation for Gary Development Landfill Site Analytical TDD No. S05-0201-006 Project TDD No. S05-0201-005 Page 6

: **E**

3.1 HOLDING TIMES

All the samples were analyzed within the holding time limits of (1) 28 days for mercury and (2) 6 months for other metals. The pH analytical method (SW-846 Method 9040B) states that samples should be analyzed "as soon as possible." The samples were analyzed for pH on the day of their receipt by the laboratory, meeting the holding time requirement.

3.2 INITIAL AND CONTINUING CALIBRATIONS

During the initial and continuing calibrations, recoveries were within the QC limits of 80 to 120 percent for mercury and 90 to 110 percent for other metals except for potassium and sodium. Positive sample results for potassium and sodium were therefore flagged "J" as estimated.

For the pH analysis, the pH meter was checked using a standard buffer solution with a pH of 7.00 before and after the analysis. The pH meter generated readings of 6.99 and 7.00; therefore, the instrument appears to have been working properly. Aside from the holding time requirement (see Section 3.1), this check is the only QC parameter that applies to the pH analysis.

3.3 BLANK RESULTS

Appropriate blanks, such as initial calibration blanks, continuing calibration blanks, and method blanks, were run with each analytical batch. No target analytes were found in the blanks at concentrations above the instrument detection limits.

Data Validation for Gary Development Landfill Site Analytical TDD No. S05-0201-006 Project TDD No. S05-0201-005 Page 7

3.4 LCS RESULTS

An LCS was analyzed with each analytical batch. The recoveries were within the laboratory-established QC limits for each target analyte.

3.5 ICS RESULTS

The ICS results were within the QC limits of 80 to 120 percent recovery.

3.6 MS/MSD RESULTS

MSs and MSDs were analyzed with the samples. For silver only, the percent recoveries were within the QC limits established by the laboratory. The percent recoveries for lead for the MSs and MSDs were below the QC limits; therefore, the quantitation limits for lead were flagged "UJ" as estimated, and the positive sample results for lead were flagged "J" as estimated. The percent recoveries for all other metals for the MSs and MSDs were above the QC limits; therefore, the positive sample results for all other metals were flagged "J" as estimated.

In addition, the relative percent differences between the MS and MSD for zinc and copper were above the QC limit of 20 percent. No qualifications were warranted for zinc because the sample result was much higher than the spike level. However, positive sample results for copper were flagged "J" as estimated.

4.0 OVERALL ASSESSMENT OF DATA

Overall, the sample analytical data generated by GLA are acceptable for use as qualified.

ATTACHMENT

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GLA SUMMARY OF ANALYTICAL RESULTS

(31 Sheets)



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601 Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

General Chemistry Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------------------|-------------------------|--------------------|-------------|----------|---------|----------|----------|-------------|-------|
| D-1 (B201120-01) Waste (L) | Sampled: 01/08/02 17:00 | Received: | 01/10/02 | 10:00 | | | | | |
| Flashpoint | >220 °F | | °F | ı | 2010256 | 01:17:02 | 01 17 02 | ASTM D93-85 | |
| рН | 7.14 | | pH Units | ** | 2010139 | 01/10/02 | 01/10/02 | EPA 9040B | |
| D-2 (B201120-02) Waste (L) | Sampled: 01/08/02 17:15 | Received: | 01/10/02 | 10:00 | | | | | |
| Flashpoint | >220 °F | | °F | 1 | 2010256 | 01 17 02 | 01 17 02 | ASTM D93-85 | |
| pH | 7.11 | | pH Units | ** | 2010139 | 01 10:02 | 01 10 02 | EPA 9040B | |
| D-9B (B201120-03) Waste (L) | Sampled: 01/09/02 14:45 | Received | d: 01/10/0 | 2 10:00 | | | | | |
| ashpoint | 161 | | °F | 1 | 2010256 | 01/17/02 | 01.17.02 | ASTM D93-85 | |
| рН | 6.67 | | pH Units | ** | 2010139 | 01/10/02 | 01.10.02 | EPA 9040B | |
| T-4 (B201120-04) Waste (L) | Sampled: 01/09/02 15:40 | Received: | 01/10/02 | 10:00 | | | | | |
| Flashpoint | 181 | | °F | ı | 2010256 | 01/17/02 | 01 17 02 | ASTM D93-85 | |
| pH | 6.45 | | pH Units | ** | 2010139 | 01/10/02 | 01 10 02 | EPA 9040B | |
| D-13 (B201120-05) Waste (L) | Sampled: 01/09/02 15:45 | Received | l: 01/10/02 | 2 10:00 | | | | | |
| Flashpoint | >220 °F | | °F | ı | 2010256 | 01/17/02 | 01:17:02 | ASTM D93-85 | |
| рН | 6.83 | | pH Units | # | 2010139 | 01/10/02 | 01/10/02 | EPA 9040B | |
| D-12 (B201120-06) Waste (L) | Sampled: 01/09/02 15:50 | Received | l: 01/10/02 | 2 10:00 | | | | | |
| Flashpoint | 191 | | °F | 1 | 2010256 | 01/17/02 | 01:17:02 | ASTM D93-85 | |
| рН | 6.81 | | pH Units | ** | 2010139 | 01/10/02 | 01/10/02 | EPA 9040B | |
| D-15 (B201120-07) Waste (L) | Sampled: 01/09/02 16:05 | Received | l: 01/10/02 | 2 10:00 | | | | | |
| Flashpoint | 171 | | °F | 1 | 2010256 | 01/17/02 | 01/17/02 | ASTM D93-85 | |
| -н | 6.50 | | pH Units | * | 2010139 | 01/10/02 | 01/10/02 | EPA 9040B | |

Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N-A Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------|-------------------------|--------------------|----------|----------|---------|----------|----------|---------------------------------------|-------|
| D-1 (B201120-01) Waste (L) | Sampled: 01/08/02 17:00 | Received: | 01/10/02 | 10:00 | | | | · · · · · · · · · · · · · · · · · · · | QC |
| Mercury | 0.000512 > | 0.000200 | mg/l | ı | 2010174 | 01:14-02 | 01 15 02 | EPA 7470A | - |
| Aluminum | ND | 0.500 | " | " | 2010205 | 01 15 02 | 01 17 02 | EPA 6010B | |
| Antimony | 0.135 ブ | 0.100 | | ** | o, | ** | ** | " | |
| Arsenic | ND | 0.0500 | " | u | n | " | | ** | |
| Barium | ND | 0.500 | 11 | | н | ** | n | ** | |
| Beryllium | ND | 0.0100 | ** | n | ** | " | ** | ** | |
| Cadmium | 0.161ブ | 0.00500 | · | n | *1 | н | •• | | |
| Calcium | 31.0 J | 0.500 | " | | ** | ** | •• | n | |
| Chromium | ND | 0.0100 | ** | •• | ** | 11 | ** | • | ٠ |
| Cobalt | ND | 0.0500 | " | ,, | ** | n | " | ** | |
| Copper | ND | 0.0500 | ** | н | | " | ** | ** | |
| Iron | 6.50 丁 | 0.100 | ** | " | " | | • | " | |
| Magnesium | ND | 0.500 | " | | ** | ** | " | n | |
| Manganese | ND | 0.0500 | 11 | 11 | ** | *1 | n | w | |
| Nickel | ND | 0.0500 | 11 | | ., | n | ** | • | |
| Potassium | ND | 0.500 | " | н | •• | ** | | i+ | |
| Selenium | ND | 0.0500 | | | ,, | ** | ** | ** | |
| Silver | ND | 0.0500 | n | ** | ** | n | ** | | |
| Sodium | 1.91 J | 0.500 | 11 | 11 | ** | | ** | 11 | |
| Thallium | ND | 0.100 | ,, | ** | | ** | 10 | n | |
| Vanadium | ND | 0.0450 | | | u u | | | n | |
| Zinc | 300 | 5.50 | ** | 11 | n | ** | | ** | |
| Lead | 0.600ブ | 0.0500 | " | 1 | и | ** | 01 17 02 | EPA 7421 | |
| | | | 01/10/03 | | | | 01 17 02 | EIA MEI | 00 |
| D-2 (B201120-02) Waste (L) | | | 01/10/02 | | | | | | QC |
| Mercury | ND | 0.000200 | mg/l | ì | 2010174 | 01/14/02 | 01 15 02 | EPA 7470A | |
| Aluminum | ND | 0.500 | " | 11 | 2010205 | 01/15/02 | 01:17:02 | EPA 6010B | |
| Antimony | 0.101 ナ | 0.100 | " | " | ,, | " | ., | | |
| Arsenic | ND | 0.0500 | ** | " | ** | н | | | |
| Barium | ND | 0.500 | ** | " | n | 11 | 11 | ** | |
| Beryllium | ND | 0.0100 | ** | * | 11 | 11 | ** | " | |
| Cadmium | ND _ | 0.00500 | ** | ** | " | " | " | • | |
| Calcium | 750 J | 10.5 | ** | 21 | " | ,, | " | * | |
| Chromium | ND | 0.0100 | n | 1 | ** | ** | n | ** | |
| Cobalt | ND | 0.0500 | " | n | " | " | ** | ** | |
| Copper | 0.0853 J | 0.0500 | " | ** | " | " | " | ** | |
| Iron | 7.91 ナ | 0.100 | ** | " | 11 | ** | ** | ** | |
| Magnesium | 2.44 ブ | 0.500 | ** | • | ** | " | " | ** | |
| | | | | | " | ., | ** | н | |
| Manganese | 0.187 ブ | 0.0500 | | " | | | | | |
| Nickel | ND | 0.0500 | ** | " | " | 19 | u | n | |
| | | | " " | " " | | n n | " | n D | |

Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson, Project Manager

2.9. 1-30-02

Page 3 of 32



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago 1L, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------------------|-------------------------|--------------------|-----------|----------|---------|----------|----------|-----------|-------|
| D-2 (B201120-02) Waste (L) | Sampled: 01/08/02 17:15 | Received: | 01/10/02 | 10:00 | | | | | QC |
| Silver | ND | 0.0500 | mg l | 1 | 2010205 | 01/15/02 | 01.17.02 | EPA 6010B | |
| Sodium | 7.46 ブ | 0.500 | 11 | н | 11 | " | ** | ** | |
| Thallium | ND | 0.100 | " | ii | 11 | n | •• | " | |
| Vanadium | ND | 0.0450 | n | 11 | " | n | | " | |
| Zinc | 461 ブ | 10.5 | 11 | 21 | u | n | 11 | ·· | |
| Lead | 0.0963 ブ | 0.0500 | " | 1 | ** | n | 01 17 02 | EPA 7421 | |
| D-9B (B201120-03) Waste (L) | Sampled: 01/09/02 14:4: | 5 Received | : 01/10/0 | 2 10:00 | | | | | QC |
| ercury | 0.00104 ブ | 0.000200 | mg l | 1 | 2010174 | 01-14-02 | 01 15 02 | EPA 7470A | |
| Aluminum | ND | 0.500 | ,, | ** | 2010205 | 01/15/02 | 01 17 02 | EPA 6010B | |
| Antimony | ND | 0.100 | ** | ** | u | " | 11 | " | |
| Arsenic | ND | 0.0500 | ** | " | " | ** | " | • | |
| Barium | ND | 0.500 | | n | D | " | | 11 | |
| Beryllium | ND | 0.0100 | ** | ** | ** | " | " | ** | |
| Cadmium | ND | 0.00500 | ** | н | ** | n | •• | " | |
| Calcium | 10.5 ブ | 0.500 | ** | D | •• | 11 | •• | " | |
| Chromium | 0.0491 ブ | 0.0100 | ** | ** | ** | ** | ** | 11 | |
| Cobalt | ND | 0.0500 | ** | •• | ** | ** | ** | n | |
| Copper | 0.481ブ | 0.0500 | | ** | ** | ü | " | " | |
| Iron | 7.93ブ | 0.100 | | ** | " | ** | " | ** | |
| Magnesium | 19.4 J | 0.500 | ** | ** | " | ** | " | ** | |
| Manganese | ND | 0.0500 | ** | ** | " | " | ** | " | |
| Nickel | ND | 0.0500 | ** | ** | u u | n | ** | ** | |
| Potassium | 5.25 ブ | 0.500 | ** | ** | n | n | ** | ** | |
| Selenium | 0.0583 ブ | 0.0500 | ** | н | " | n | ** | н | |
| Silver | ND | 0.0500 | •• | | ** | * | " | n | |
| ⁄dium | 9.46丁 | 0.500 | ** | n | | ** | ** | ** | |
| Thallium | ND | 0.100 | ** | ** | " | ** | " | н | |
| Vanadium | ND | 0.0450 | | ** | | n | n | ** | |
| Zinc | 45.8 J | 0.500 | D | " | ** | n | " | ** | |
| Lead | 6.33 丁 | 0.550 | ** | 11 | ** | " | 01:17:02 | EPA 7421 | |

Great Lakes Analytical

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Andy Johnson, Project Manager

2.1. 1-30-02



Email. info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01-18-02-10:23

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical

| | | Reporting | | | | | | | |
|----------------------------|-------------------------|-----------|----------|----------|---------|----------|----------|-----------|-------|
| Analyte | Result | Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
| T-4 (B201120-04) Waste (L) | Sampled: 01/09/02 15:40 | Received: | 01/10/02 | 10:00 | | | | | QC |
| Mercury | ND | 0.000200 | mg l | 1 | 2010174 | 01:14:02 | 01 15 02 | EPA 7470A | |
| Aluminum | ND | 0.500 | ** | ** | 2010205 | 01 15 02 | 01 17 02 | EPA 6010B | |
| Antimony | ND | 0.100 | ** | н | " | ·· | | | |
| Arsenic | ND | 0.0500 | ** | " | | ** | ** | " | |
| Barium | ND | 0.500 | 11 | 0 | н | o. | | ** | |
| Beryllium | ND | 0.0100 | " | " | ** | pt. | ** | " | |
| Cadmium | ND | 0.00500 | ** | ** | ** | ** | ** | ** | |
| Calcium | ND | 0.500 | 12 | " | •• | n | •• | •• | |
| Chromium | ND | 0.0100 | 10 | * | ** | n | ** | 10 | |
| Cobalt | ND | 0.0500 | ** | " | ** | ** | ** | ** | |
| Copper | 0.0745 ブ | 0.0500 | | n | ** | ** | | 11 | |
| Iron | ND | 0.100 | 11 | n | n | ** | n | Ü | |
| Magnesium | ND | 0.500 | ** | n | ** | ** | •• | 11 | |
| Manganese | ND | 0.0500 | " | ** | " | " | ** | H | |
| Nickel | ND | 0.0500 | | | " | " | •• | ** | |
| Potassium | 3.61 ブ | 0.500 | *1 | ** | ** | | ** | ** | |
| Selenium | ND | 0.0500 | ** | ** | | ** | " | n | |
| Silver | ND | 0.0500 | | n | | " | | " | |
| Sodium | 0.731 丁 | 0.500 | 11 | n | ** | ** | " | u, | |
| Thallium | ND | 0.100 | | 11 | ** | * | ** | u | |
| Vanadium | ND | 0.0450 | | | ** | ** | | 11 | |
| Zinc | 1.39寸 | 0.500 | | | ** | ** | •• | 11 | |
| Lead | ND ND | 0.0500 | リブ … | ,, | | " | 01 17:02 | EPA 7421 | |
| D-13 (B201120-05) Waste (L | | | | 2 10.00 | | | | | QC |
| Mercury | ND | 0.000200 | mg l | 1 | 2010174 | 01.14/02 | 01 15 02 | EPA 7470A | |
| Aluminum | 0.547 ゴ | 0.500 | ıng ı | 1 | 2010174 | 01-15/02 | 01 17 02 | EPA 6010B | |
| Antimony | 0.347 J ND | 0.100 | ** | | 2010203 | 01/13/02 | 01 17:02 | " " | |
| Arsenic | ND ND | 0.0500 | ** | ** | " | ,, | ** | ** | |
| Barium | ND ND | 0.500 | ** | " | | ** | | * | |
| Beryllium | ND | 0.0100 | ., | ** | 11 | ** | ,, | •• | |
| Cadmium | ND ND | 0.00500 | | n | ** | | 11 | ** | |
| Calcium | 1420 J | 25.5 | ** | 51 | 11 | ** | ** | ** | |
| | 1420 J ND | | | | | ** | | ** | |
| Chromium Cobalt | | 0.0100 | | 1 " | " | ** | | ** | |
| Cobalt | ND 0.242 T | 0.0500 | " | ,, | ** | ,, | n | ** | |
| Copper | 0.343 ブ ND | 0.0500 | | | ,, | 11 | ** | H | |
| Iron | 4.21 J | 0.100 | | H | ,, | ** | | | |
| Magnesium | | | ,, | ** | ** | ,, | " | | |
| Manganese | 0.122 ブ | 0.0500 | | " | " | " 11 | n | " " | |
| Nickel | ND | 0.0500 | " | " | " | ,, | ** | | |
| Potassium | 8.34 ブ | 0.500 | | " | ,, | " | " | | |
| Selenium | ND | 0.0500 | " | ** | ** | ** | •• | | |

Great Lakes Analytical

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Andy Johnson, Project Manager

1.1.30-02



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------------------|-------------------------|--------------------|---------|----------|---------|----------|----------|-----------|-------|
| D-13 (B201120-05) Waste (L) | Sampled: 01/09/02 15:45 | Received: | 01/10/0 | 2 10:00 | | | | | QC |
| Silver | ND | 0.0500 | mg/l | 1 | 2010205 | 01 15 02 | 01 17:02 | EPA 6010B | |
| Sodium | 18.0 ブ | 0.500 | ** | ** | ** | ** | ** | h | |
| Thallium | 0.116 ブ | 0.100 | 19 | ** | ** | ** | ** | " | |
| Vanadium | ND | 0.0450 | 19 | ** | ** | ** | ** | ** | |
| Zinc | 593 ブ | 25.5 | " | 51 | * | ** | " | ** | |
| Lead | 0.115 ブ | 0.0500 | " | 1 | ** | ** | 01 17 02 | EPA 7421 | |
| D-12 (B201120-06) Waste (L) | Sampled: 01/09/02 15:50 | Received: | 01/10/0 | 2 10:00 | | | | | QC |
| ercury | ND | 0.000200 | mg/l | 1 | 2010174 | 01/14/02 | 01 15 02 | EPA 7470A | |
| Aluminum | ND | 0.500 | " | | 2010205 | 01/15/02 | 01 17 02 | EPA 6010B | |
| Antimony | ND | 0.100 | ** | ** | ** | " | н | n | |
| Arsenic | 0.114 ブ | 0.0500 | " | " | ** | " | " | · · | |
| Barium | ND | 0.500 | •• | ** | ** | " | •• | n | |
| Beryllium | ND | 0.0100 | " | ** | " | " | " | n . | |
| Cadmium | ND | 0.00500 | " | ** | " | ** | " | n . | |
| Calcium | 3.66 J | 0.500 | ** | " | ** | " | u | | |
| Chromium | 0.0534 ブ | 0.0100 | ** | " | ** | н | 11 | ** | |
| Cobalt | ND | 0.0500 | ** | н | ** | " | 11 | ** | |
| Copper | 0.616 J | 0.0500 | ** | 11 | н | H | ** | ** | |
| Iron | ND | 0.100 | ** | ** | ** | ** | 11 | ** | |
| Magnesium | ND | 0.500 | ** | ** | ** | ** | ** | * | |
| Manganese | ND | 0.0500 | • | ** | " | ** | ** | n | |
| Nickel | 0.0660 丁 | 0.0500 | ** | ** | ** | ** | ** | n | |
| Potassium | ND | 0.500 | • | ** | ** | •• | " | ** | |
| Selenium | ND | 0.0500 | ** | " | ** | " | " | • | |
| Silver | ND | 0.0500 | ** | ** | n | " | " | * | |
| odium | 3.95 J | 0.500 | " | ** | n | н | ** | 11 | |
| Thallium | ND | 0.100 | ** | " | 11 | H | " | ** | |
| Vanadium | ND | 0.0450 | • | н | n | u | " | " | |
| Zinc | 5.80 ブ | 0.500 | | ** | " | | " | ** | |
| Lead | ND | 0.0500 | ۳ | 11 | " | " | 01:17:02 | EPA 7421 | |

Great Lakes Analytical

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1. J.

1-30-02



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N'A Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------------------|-------------------------|--------------------|---------|----------|---------|----------|----------|-----------|-------|
| D-15 (B201120-07) Waste (L) | Sampled: 01/09/02 16:05 | Received: | 01/10/0 | 2 10:00 | | | | | QC |
| Mercury | ND | 0.000200 | mg-l | ł | 2010174 | 01 14 02 | 01 15 02 | EPA 7470A | |
| Aluminum | ND | 5.50 | " | 11 | 2010205 | 01/15/02 | 01:17:02 | EPA 6010B | |
| Antimony | ND | 1.10 | н | н | " | n | 11 | н | |
| Arsenic | ND | 0.550 | " | ** | " | u u | *** | н | |
| Barium | ND | 5.50 | | | n n | " | | ** | |
| Beryllium | ND | 0.110 | " | | " | " | H | " | |
| Cadmium | ND | 0.0550 | u | ** | ** | " | " | n | |
| Calcium | 32.7 J | 5.50 | 37 | n | ** | n | ** | ** | |
| Chromium | ND | 0.110 | 11 | ** | ** | ** | ,, | ** | |
| Cobalt | ND | 0.550 | ** | ** | n | " | •• | ** | |
| Copper | ND | 0.550 | ** | •• | u | 11 | ** | ** | |
| Iron | ND | 1.10 | ** | · · | 11 | | ** | " | |
| Magnesium | ND | 5.50 | н | | 11 | ** | ** | ** | |
| Manganese | ND | 0.550 | " | " | " | | *1 | " | |
| Nickel | ND | 0.550 | | ** | * | 11 | | | |
| Potassium | 66.3 J | 5.50 | " | " | ** | ** | ** | 11 | |
| Selenium | ND | 0.550 | ** | " | n | " | ** | | |
| Silver | ND | 0.550 | •• | " | 11 | 11 | ** | " | |
| Sodium | ND | 5.50 | •• | 11 | ** | ** | | ** | |
| Thallium | 1.59 ナ | 1.10 | | n | ** | ** | n | | |
| Vanadium | ND | 0.495 | н | ** | ** | ** | ** | ** | |
| Zinc | 56.3 J | 5.50 | ** | ** | ., | ** | ,, | | |
| Lead | ND | 0.0500 U | J " | 1 | •• | • | 01/17/02 | EPA 7421 | |

Great Lakes Analytical

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Andy Johnson, Project Manager

L.G. 1-30-02

Page 7 of 32



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago 1L, 60601

Project Number: N/A Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Great Lakes Analytical | | | | | | | | | | | |
|-------------------------------|-------------------------|--------------------|----------|---------------|---------|----------|----------|-------------|------|--|--|
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note | | |
| D-1 (B201120-01) Waste (L) | Sampled: 01/08/02 17:00 | Received: | 01/10/02 | 10:00 | | | | | Q | | |
| Acetone | ND | 500 | ug kg | 50 | 2010245 | 01 16 02 | 01 16 02 | 5030B 8260B | | | |
| Benzene | ND | 100 | n | ** | " | " | n | ** | | | |
| Bromodichloromethane | ND | 100 | 11 | ** | ** | " | " | | | | |
| Bromoform | ND | 100 | | ** | ** | " | " | | | | |
| Bromomethane | ND | 100 | ** | ** | " | н | ** | 0 | | | |
| 2-Butanone | ND | 500 | ** | " | " | H | " | " | | | |
| Carbon disulfide | ND | 100 | ** | | " | " | U | ,, | | | |
| Carbon tetrachloride | ND | 100 | ** | ** | ** | " | | ** | | | |
| ilorobenzene | ND | 100 | • | •• | ** | n n | ** | н | | | |
| ~hlorodibromomethane | ND | 100 | " | ** | " | " | ** | ** | | | |
| Chloroethane | ND | 100 | н | ** | " | " | ** | ** | | | |
| Chloroform | ND | 100 | " | " | " | | ** | • | | | |
| Chloromethane | ND | 100 | ** | " | | " | " | ** | | | |
| 1,1-Dichloroethane | ND | 100 | | · | | | | ** | | | |
| 1,2-Dichloroethane | ND | 100 | " | ,, | " | | " | H | | | |
| 1.1-Dichloroethene | ND | 100 | ** | ** | 11 | " | *1 | н | | | |
| cis-1,2-Dichloroethene | ND | 100 | •• | ** | ** | " | •• | H | | | |
| trans-1,2-Dichloroethene | ND | 100 | | " | " | " | ** | 11 | | | |
| 1,2-Dichloropropane | ND | 100 | ** | | | •• | ** | ** | | | |
| cis-1,3-Dichloropropene | ND | 100 | ** | " | | ** | ** | ** | | | |
| trans-1,3-Dichloropropene | ND | 100 | ** | | • | ,, | ** | | | | |
| Ethylbenzene Ethylbenzene | ND | 100 | •• | n | ,, | | | ** | | | |
| 2-Hexanone | ND | 500 | ** | n | ** | " | 11 | | | | |
| Methylene chloride | ND | 100 | ** | ** | ** | ** | ** | ** | | | |
| 4-Methyl-2-pentanone | ND | 500 | ŋ | ** | ,, | | ** | | | | |
| Styrene Styrene | ND | 100 | " | ** | | | ,, | ,, | | | |
| 1,2,2-Tetrachloroethane | ND | 100 | " | | ,, | *1 | | ** | | | |
| Tetrachloroethene | ND ND | 100 | 11 | ** | ** | ** | | n | | | |
| Toluene | 1860 J | 100 | ** | | " | u | • | ** | | | |
| 1,1,1-Trichloroethane | ND | 100 | ** | ** | | u | | ,, | | | |
| 1,1,2-Trichloroethane | ND ND | 100 | ** | ,, | | " | | ,, | | | |
| Trichloroethene | ND ND | 100 | ** | ** | | " | ** | n | | | |
| Trichlorofluoromethane | ND ND | 100 | н | | n | ** | ** | n | | | |
| Vinyl acetate | ND ND | 100 | ** | | ,, | | ,, | | | | |
| | ND ND | 100 | ., | ,, | n | | | , | | | |
| Vinyl chloride | ND 384 ブ | | | " | ,, | | " | " | | | |
| Total Xylenes | | 100 | | | | | | | | | |
| Surrogate: Dibromofluorometh | | 78.0 % | | 1-111 | " | " | " | " | 0 | | |
| Surrogate: 1,2-Dichloroethane | -d4 | 112 % | | '-10 4 | . " | " | " | " | 0 | | |
| Surrogate: Toluene-d8 | | 97.2 % | | -105 | . " | " | " | " | | | |
| Surrogate: 4-Bromofluorobenz | ene | 136 % | 89.6 | 5-105 | " | " | ,, | " | 0 | | |

Great Lakes Analytical

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Andy Johnson, Project Manager

d.L. 1-30-02



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|---|-------------------------|--------------------|----------|----------|---------|----------|----------|-------------|------|
| D-2 (B201120-02) Waste (L) | Sampled: 01/08/02 17:15 | Received: | 01/10/02 | 10:00 | ···· | | | | Q |
| Acetone | ND | 500 | ug kg | 50 | 2010245 | 01 16 02 | 01 16 02 | 5030B 8260B | |
| Benzene | ND | 100 | " | ** | ** | " | 11 | ** | |
| Bromodichloromethane | ND | 100 | ** | ** | " | " | 11 | ** | |
| Bromoform | ND | 100 | 11 | •• | ** | ** | " | " | |
| Bromomethane | ND | 100 | " | 11 | ** | " | " | " | |
| 2-Butanone | ND | 500 | •• | ** | H | " | n | n | |
| Carbon disulfide | ND | 100 | | 11 | ** | " | | 11 | |
| Carbon tetrachloride | ND | 100 | ** | " | ** | " | • | e e | |
| Chlorobenzene | ND | 100 | o o | ** | | н | ** | II. | |
| Chlorodibromomethane | ND | 100 | n | ** | P | " | ** | 11 | |
| Chloroethane | ND | 100 | ** | ** | ** | u | ** | " | |
| Chloroform | ND | 100 | ** | ** | 11 | " | ** | ** | |
| Chloromethane | ND | 100 | | н | " | 11 | ** | " | |
| 1,1-Dichloroethane | ND | 100 | ** | " | 11 | 11 | | ** | |
| 1,2-Dichloroethane | ND | 100 | н | | " | " | " | ** | |
| 1,1-Dichloroethene | ND | 100 | ., | n | ** | " | n | ** | |
| cis-1,2-Dichloroethene | ND | 100 | u | ** | " | * | | | |
| trans-1,2-Dichloroethene | ND | 100 | P | n | ** | " | • | n | |
| 1,2-Dichloropropane | ND | 100 | ** | ** | " | | " | 11 | |
| cis-1,3-Dichloropropene | ND | 100 | " | " | | n | ** | ** | |
| trans-1,3-Dichloropropene | ND | 100 | ** | ** | υ | ** | н | ** | |
| Ethylbenzene | 162 J | 100 | ., | u | ** | ** | II . | •• | |
| 2-Hexanone | ND | 500 | ** | " | | ** | n | ** | |
| Methylene chloride | ND | 100 | 0 | n | ** | ** | n | w | |
| 4-Methyl-2-pentanone | ND | 500 | " | н | ** | u | ** | n | |
| Styrene | ND | 100 | " | ,, | D | ** | · · | 11 | |
| 1,1,2,2-Tetrachloroethane | ND | 100 | ** | m | ** | ** | 11 | n . | _ |
| Tetrachloroethene | ND | 100 | ** | ** | ** | 11 | ** | | |
| Toluene | 4690プ | 100 | " | " | ** | ** | | ** | |
| 1,1,1-Trichloroethane | ND | 100 | | ** | ** | 11 | | ** | |
| 1,1,2-Trichloroethane | ND | 100 | ** | 11 | n | ** | ** | н | |
| Trichloroethene | ND | 100 | " | ıı. | " | * | tt. | •• | |
| Trichlorofluoromethane | ND | 100 | | ** | ** | 11 | n | • | |
| Vinyl acetate | ND | 100 | * | ** | ** | н | " | • | |
| Vinyl chloride | ND | 100 | •• | ** | u u | ** | •• | ** | |
| Total Xylenes | 892 ブ | 100 | " | ,, | n | ** | ** | " | |
| Surrogate: Dibromofluorometh | iane | 75.4 % | 91 | 1-111 | " | " | " | " | (|
| Surrogate: 1,2-Dichloroethane | | 111% | | 1-104 | | ,, | " | | Č |
| Surrogate: Toluene-d8 | · , | 97.6 % | | 1-105 | ,, | ,, | " | " | |
| Surrogate: 10thene-40 Surrogate: 4-Bromofluorobenz | ana | 129 % | | 5-105 | " | ,, | | ,, | (|

Great Lakes Analytical

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Andy Johnson, Project Manager

1.8.



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01-18-02-10:23

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|--------------------------------|-------------------------|--------------------|-----------|----------|---------|----------|----------|-------------|------|
| D-9B (B201120-03) Waste (L) | Sampled: 01/09/02 14:45 | Received | : 01/10/0 | 2 10:00 | | | | | Q |
| Acetone | ND | 1000 | ug kg | 100 | 2010245 | 01 16 02 | 01 16 02 | 5030B 8260B | |
| Benzene | 2510 ブ | 200 | 11 | ** | ** | ** | ** | *1 | |
| Bromodichloromethane | ND | 200 | " | | ** | " | D | ** | |
| Bromoform | ND | 200 | " | | | *1 | D | 11 | |
| Bromomethane | ND | 200 | 11 | ** | " | ** | n | " | |
| 2-Butanone | ND | 1000 | n | " | " | ** | " | n | |
| Carbon disulfide | ND | 200 | *** | ** | " | ** | n | ,, | |
| Carbon tetrachloride | ND | 200 | ** | 91 | u u | ** | ** | •• | |
| ilorobenzene | ND | 200 | n | ** | v | 11 | н | H | |
| Chlorodibromomethane | ND | 200 | ** | •• | " | " | н | н | |
| Chloroethane | ND | 200 | • | " | | ** | | ** | |
| Chloroform | ND | 200 | н | ,, | ** | ** | ** | | |
| Chloromethane | ND | 200 | ** | ** | | u | ** | ,, | |
| 1,1-Dichloroethane | ND | 200 | ** | | " | u | ** | ** | |
| 1,2-Dichloroethane | ND | 200 | ** | ,, | | " | 10 | н | |
| 1,1-Dichloroethene | ND | 200 | ** | ,, | | •• | ,, | ** | |
| cis-1,2-Dichloroethene | ND | 200 | " | ** | 11 | н | ** | ** | |
| trans-1,2-Dichloroethene | ND | 200 | ** | ** | | | | | |
| 1,2-Dichloropropane | ND | 200 | ,, | ** | n | 11 | ** | | |
| cis-1,3-Dichloropropene | ND | 200 | ** | н | | | | | |
| trans-1,3-Dichloropropene | ND | 200 | 17 | ** | 11 | " | | 11 | |
| Ethylbenzene | 13400 J | 200 | ,, | ** | n | " | | | |
| 2-Hexanone | ND | 1000 | ** | ** | | | | n . | |
| Methylene chloride | ND | 200 | •• | | n | | | н | |
| 4-Methyl-2-pentanone | ND ND | 1000 | ,, | ** | 11 | | ,, | n | |
| Styrene Styrene | ND | 200 | ., | | 11 | ., | ** | | |
| 1,2,2-Tetrachloroethane | ND ND | 200 | ** | ** | ., | ,, | •• | | • |
| Tetrachloroethene | ND ND | 200 | ** | ** | ,, | D | ., | | |
| Toluene | 19600 J | 200 | •• | •• | ,, | 11 | " | ,, | |
| 1,1,1-Trichloroethane | ND | 200 | " | ** | ,, | ,, | | | |
| 1,1,2-Trichloroethane | ND ND | 200 | ** | ** | ,, | ** | | | |
| Trichloroethene | | | ** | 11 | ** | ,, | ,, | ,, | |
| | ND ND | 200 | | | ** | n | | | |
| Trichlorofluoromethane | ND ND | 200 | | | | | | | |
| Vinyl ablanda | ND ND | 200 | ., | | ,, | ., | ,, | " | |
| Vinyl chloride | ND | 200 | " | ,, | ,, | " | ,, | " | |
| Total Xylenes | 53000 J | 200 | | | | | | | |
| Surrogate: Dibromofluorometho | | 80.0 % | 91.1 | | ** | ** | ** | " | C |
| Surrogate: 1,2-Dichloroethane- | d 4 | 113 % | | -104 | " | " | " | * | C |
| Surrogate: Toluene-d8 | | 98.0 % | 95.1 | -105 | " | " | " | " | |
| Surrogate: 4-Bromofluorobenze | ne | 118 % | 89.6 | -105 | " | •• | ,, | " | o |

Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

J.D. 1-30-02



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

; E

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N'A
Project Manager: Lisa Graczyk

Reported:

01/18/02 10:23

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---------------------------------|-------------------------|--------------------|----------|----------|---------|----------|----------|-------------|-------|
| T-4 (B201120-04) Waste (L) | Sampled: 01/09/02 15:40 | Received: | 01/10/02 | 10:00 | | | | | QC |
| Acetone | ND | 10000 | ug kg | 1000 | 2010245 | 01 16-02 | 01 16:02 | 5030B 8260B | |
| Benzene | ND | 2000 | ** | ** | " | " | * | ** | |
| Bromodichloromethane | ND | 2000 | ** | " | " | ** | ** | н | |
| Bromoform | ND | 2000 | ** | | " | " | •• | n | |
| Bromomethane | ND | 2000 | н | ** | ,, | п | ** | n | |
| 2-Butanone | ND | 10000 | ** | ** | 10 | " | ** | Ü | |
| Carbon disulfide | ND | 2000 | ** | " | Ħ | " | " | Ď. | |
| Carbon tetrachloride | ND | 2000 | " | ** | н | " | ** | ** | |
| Chlorobenzene | ND | 2000 | •• | 11 | " | ** | ** | ** | |
| Chlorodibromomethane | ND | 2000 | | ** | | ** | | ** | |
| Chloroethane | ND | 2000 | ** | ** | n | ** | | н . | |
| Chloroform | ND | 2000 | n | ** | n | | ** | u | |
| Chloromethane | ND | 2000 | " | | ** | ** | " | | |
| 1,1-Dichloroethane | ND | 2000 | ** | Pt | | | •• | n | |
| 1.2-Dichloroethane | ND | 2000 | | ** | | *1 | ** | •• | |
| 1.1-Dichloroethene | ND | 2000 | " | ** | ** | | " | ** | |
| cis-1,2-Dichloroethene | ND | 2000 | ** | ** | u | п | ** | | |
| trans-1,2-Dichloroethene | ND | 2000 | " | ** | n | ** | | ** | |
| 1,2-Dichloropropane | ND | 2000 | " | | n | ** | " | n · | |
| cis-1,3-Dichloropropene | ND | 2000 | ** | ". | " | ** | | u | |
| trans-1,3-Dichloropropene | ND | 2000 | ** | | ** | | | ii . | |
| Ethvlbenzene | 53000 J | 2000 | " | ,, | •• | ** | | D | |
| 2-Hexanone | ND | 10000 | " | ** | •• | ** | | D | |
| Methylene chloride | ND | 2000 | n | u | •• | | | •• | |
| 4-Methyl-2-pentanone | ND | 10000 | 11 | ** | | ** | ** | ** | |
| Styrene | ND | 2000 | " | ** | 11 | ** | •• | ** | |
| 1.1.2.2-Tetrachloroethane | ND ND | 2000 | ** | | ** | н | ., | | |
| Tetrachloroethene | ND | 2000 | | ., | ** | | | ** | - |
| Toluene | 47200 J | 2000 | | | ** | | | • | |
| 1.1.1-Trichloroethane | 4/200 S ND | 2000 | ** | ,, | | " | | ** | |
| 1,1,2-Trichloroethane | ND | 2000 | | ,, | " | ** | n | | |
| Trichloroethene | ND ND | 2000 | " | ** | | ** | | | |
| Trichlorofluoromethane | ND | 2000 | ** | | " | | ** | ıı . | |
| | ND ND | 2000 | ** | 11 | ,, | ** | *1 | " | |
| Vinyl acetate Vinyl chloride | ND ND | 2000 | | n | ** | ** | ** | n | |
| - | 348000 J | 2000 | ** | 11 | ** | ** | ,, | и | |
| Total Xylenes | | | | | 74 | | " | ,, | ^ |
| Surrogate: Dibromofluoromet | | 75.0 % | | -111 | | | " | ,, | 0 |
| Surrogate: 1,2-Dichloroethane | ?-d4 | 113 % | | -104 | " | " | " | " | 0 |
| Surrogate: Toluene-d8 | | 97.0 % | | -105 | " | | | " | _ |
| Surrogate: 4-Bromofluoroben: | zene | 125 % | 89.6 | 5-105 | " | " | " | " | 0 |

Great Lakes Analytical

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Andy Johnson, Project Manager

1-30-02

Page 11 of 32



Email info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: NA
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Great Lakes Alialytical | | | | | | | | | | | |
|------------------------------------|-------------------------|--------------------|-----------|----------|---------|----------|----------|-------------|-------|--|--|
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes | | |
| D-13 (B201120-05) Waste (L) | Sampled: 01/09/02 15:45 | Received | : 01/10/0 | 2 10:00 | | | | | Q | | |
| Acetone | ND | 500 | ug kg | 50 | 2010245 | 01/16/02 | 01 16 02 | 5030B 8260B | | | |
| Benzene | ND | 100 | ** | ** | ** | n | H | ** | | | |
| Bromodichloromethane | ND | 100 | 11 | ** | ** | ** | ** | ** | | | |
| Bromoform | ND | 100 | 11 | *1 | ** | ** | н | ** | | | |
| Bromomethane | ND | 100 | n | | " | ** | ** | ** | | | |
| 2-Butanone | ND | 500 | 10 | ** | ** | a | " | ** | | | |
| Carbon disulfide | ND | 100 | ** | ** | " | w | ** | u | | | |
| Carbon tetrachloride | ND | 100 | | ** | | 11 | ** | " | | | |
| hlorobenzene | ND | 100 | ** | | n | n | ** | ** | | | |
| ~hlorodibromomethane | ND | 100 | ** | ** | n | n | •• | н | | | |
| Chloroethane | ND | 100 | ** | ** | n | 11 | •• | ** | | | |
| Chloroform | ND | 100 | ** | • | D | 11 | | n | | | |
| Chloromethane | ND | 100 | ** | n | n | ** | | | | | |
| 1,1-Dichloroethane | ND | 100 | н | ** | " | ** | ** | 11 | | | |
| 1.2-Dichloroethane | ND | 100 | | +1 | ** | 11 | ** | ** | | | |
| 1,1-Dichloroethene | ND | 100 | ** | ** | ** | 11 | | ** | | | |
| cis-1,2-Dichloroethene | ND | 100 | ** | | ** | n | " | ** | | | |
| trans-1,2-Dichloroethene | ND | 100 | ** | | " | ** | " | | | | |
| 1,2-Dichloropropane | ND | 100 | ** | | 11 | 0 | · | | | | |
| cis-1,3-Dichloropropene | ND | 100 | ** | ,, | ** | n | n | ** | | | |
| trans-1,3-Dichloropropene | ND | 100 | ** | ,, | ,, | ,, | " | | | | |
| Ethylbenzene | 360 ブ | 100 | ** | ,, | " | ** | n | ** | | | |
| 2-Hexanone | ND | 500 | | ** | н | н | n | ** | | | |
| Methylene chloride | ND | 100 | ** | ** | ** | ** | 11 | ** | | | |
| 4-Methyl-2-pentanone | ND ND | 500 | ** | *1 | ** | ** | ** | , · | | | |
| | ND ND | 100 | | n | u | ** | ,, | ** | | | |
| Styrene 1,2,2-Tetrachloroethane | ND ND | 100 | | ,, | | | ,, | ** | | | |
| Tetrachloroethene | ND ND | 100 | " | ** | 11 | ** | ** | | | | |
| Toluene | 10900 J | 100 | ** | ** | ** | ., | •• | U | | | |
| - * | 10900 J ND | 100 | ,, | ,, | ,, | ** | 11 | • | | | |
| 1,1.1-Trichloroethane | ND | | ** | 19 | | | ,, | ** | | | |
| 1,1,2-Trichloroethane | | 100 | | ,, | | ., | ,, | ** | | | |
| Trichloroethene | ND | 100 | | " | | ** | ,, | ** | | | |
| Trichlorofluoromethane | ND | 100 | , | " | ,, | ,, | ,, | " | | | |
| Vinyl acetate | ND | 100 | | " | | ,, | " | " | | | |
| Vinyl chloride | ND | 100 | ,, | | ", | ** | " | | | | |
| Total Xylenes | 1930 ブ | 100 | | | | | | | | | |
| Surrogate: Dibromofluoromethe | | 78.2 % | | 1-111 | " | " | " | " | C | | |
| Surrogate: 1.2-Dichloroethane- | d4 | 111 % | | 1-104 | " | " | " | " | 0 | | |
| Surrogate: Toluene-d8 | | 96.6 % | | 1-105 | " | " | " | " | | | |
| Surrogate: 4-Bromofluorobenze | rne | 127 % | 89.6 | 5-105 | " | <i>"</i> | " | " | 0 | | |

Great Lakes Analytical

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Andy Johnson, Project Manager

1-30-02

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

τ.

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

Reported:

01/18/02 10:23

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|---------------------------------|-------------------------|--------------------|-----------|--------------|---------|----------|----------|-------------|------|
| D-12 (B201120-06) Waste (L) | Sampled: 01/09/02 15:50 | Received | : 01/10/0 | 2 10:00 | | | | | Q |
| Acetone | ND | 2500 | ug kg | 250 | 2010245 | 01:16:02 | 01 16 02 | 5030B 8260B | |
| Benzene | ND | 500 | | ** | " | | ,, | n | |
| Bromodichloromethane | ND | 500 | 11 | " | " | " | | " | |
| Bromoform | ND | 500 | ** | ** | " | ** | ** | " | |
| Bromomethane | ND | 500 | н | | ** | " | | " | |
| 2-Butanone | ND | 2500 | ** | ** | U | " | ** | D | |
| Carbon disulfide | ND | 500 | 10 | " | " | " | ** | н | |
| Carbon tetrachloride | ND | 500 | ** | ** | n | n | " | " | |
| Chlorobenzene | ND | 500 | h | • | " | ** | | ** | |
| Chlorodibromomethane | ND | 500 | | " | " | " | " | n | |
| Chloroethane | ND | 500 | ** | | | " | *1 | " | |
| Chloroform | ND | 500 | ** | " | ** | " | ** | " | |
| Chloromethane | ND | 500 | ** | ŧi | " | u | ** | D. | |
| 1,1-Dichloroethane | ND | 500 | | ** | 11 | " | •• | ** | |
| 1,2-Dichloroethane | ND | 500 | | " | 0 | ** | ** | ** | |
| 1,1-Dichloroethene | ND | 500 | ** | ** | 11 | " | ** | " | |
| cis-1,2-Dichloroethene | ND | 500 | •• | " | H | н | | ** | |
| trans-1,2-Dichloroethene | ND | 500 | 11 | " | | " | " | n . | |
| 1.2-Dichloropropane | ND | 500 | ** | 11 | •• | ** | ** | n | |
| cis-1,3-Dichloropropene | ND | 500 | • | ** | •• | ** | ** | u | |
| trans-1,3-Dichloropropene | ND | 500 | | n | n | u | | ., | |
| Ethylbenzene | ND | 500 | D | ** | ** | ** | ** | ** | |
| 2-Hexanone | ND | 2500 | м | " | 41 | ** | | " | |
| Methylene chloride | ND | 500 | | 11 | п | 11 | •• | •• | |
| 4-Methyl-2-pentanone | ND | 2500 | ** | " | 10 | | " | n | |
| Styrene | ND | 500 | ,, | " | ** | | •• | ** | |
| 1,1,2,2-Tetrachloroethane | ND | 500 | " | н | | ** | | н | _ |
| Tetrachloroethene | ND | 500 | | ** | •• | | | n | |
| Toluene | 66700 ブ | 500 | ,, | | | •• | ** | | |
| 1,1,1-Trichloroethane | ND | 500 | n | ,, | ** | ** | ** | ** | |
| 1.1.2-Trichloroethane | ND | 500 | ** | | ** | ** | •• | ** | |
| Trichloroethene | ND | 500 | ** | ** | " | | ** | | |
| Trichlorofluoromethane | ND | 500 | ,, | | " | 0 | " | * | |
| Vinyl acetate | ND | 500 | ** | n | 11 | " | | n | |
| Vinyl acciate Vinyl chloride | ND | 500 | " | ** | " | ** | | н | |
| Total Xylenes | 4450 J | 500 | ıı | " | " | ** | " | ** | |
| Surrogate: Dibromofluorometha | | 78.4 % | 91. | <i>I-111</i> | " | " | " | " | (|
| Surrogate: 1,2-Dichloroethane-a | | 112 % | | 1-104 | | " | " | " | C |
| Surrogate: Toluene-d8 | · · | 98.6 % | | 1-105 | " | " | " | ,, | |
| Surrogate: 4-Bromofluorobenzei | 16 | 121 % | | 6-105 | ,, | ,, | | " | (|

Great Lakes Analytical

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2.7

1-30-02



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported:

01-18/02 10:23

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| | | Reporting | | Marytica | - | | | | |
|--------------------------------|-------------------------|------------|-----------|----------|--------------|-------------|----------|-------------|------|
| Analyte | Result | Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
| D-15 (B201120-07) Waste (L) | Sampled: 01/09/02 16:05 | Received | : 01/10/0 | 2 10:00 | | - <u></u> - | | | Q |
| Acetone | ND | 500 | ug kg | 50 | 2010245 | 01 16 02 | 01 16 02 | 5030B-8260B | |
| Benzene | ND | 100 | ** | " | ** | • | " | ** | |
| Bromodichloromethane | ND | 100 | " | | * | | " | •• | |
| Bromoform | ND | 100 | ** | " | ** | u | ** | •• | |
| Bromomethane | ND | 100 | ** | ** | ** | " | " | ** | |
| 2-Butanone | ND | 500 | " | ** | ** | " | | ** | |
| Carbon disulfide | ND | 100 | ** | ** | " | n | " | • | |
| Carbon tetrachloride | ND | 100 | н | ** | " | " | " | ** | |
| hlorobenzene | ND | 100 | ** | | 11 | н | " | ** | |
| Chlorodibromomethane | ND | 100 | ** | " | | H | •• | ** | |
| Chloroethane | ND | 100 | • | | n | n | " | " | |
| Chloroform | ND | 100 | 11 | ** | n | 11 | * | u | |
| Chloromethane | ND | 100 | ** | " | " | II . | " | u | |
| 1,1-Dichloroethane | ND | 100 | ** | ** | *1 | " | •• | u | |
| 1.2-Dichloroethane | ND | 100 | ** | " | •• | 11 | ** | n . | |
| 1,1-Dichloroethene | ND | 100 | | | | n | ** | ** | |
| cis-1,2-Dichloroethene | ND | 100 | | " | " | ** | ** | ** | |
| trans-1,2-Dichloroethene | ND | 100 | ** | 11 | •• | ** | ** | " | |
| 1,2-Dichloropropane | ND | 100 | ,, | " | ., | *** | •• | ** | |
| cis-1,3-Dichloropropene | ND | 100 | •• | ** | | ** | | | |
| trans-1,3-Dichloropropene | ND | 100 | ** | ,, | | ** | ** | ** | |
| Ethylbenzene | ND | 100 | ** | ** | ,, | ** | ** | ** | |
| 2-Hexanone | ND ND | 500 | " | | | ** | | ** | |
| Methylene chloride | ND | 100 | •• | | ** | 11 | ıı | •• | |
| 4-Methyl-2-pentanone | ND | 500 | •• | | " | н | u | * | |
| Styrene | ND | 100 | | ,, | | ** | • | ** | |
| 1,2,2-Tetrachloroethane | ND | 100 | ** | | | | ** | ** | |
| Tetrachloroethene | ND | 100 | ** | | | | *1 | н | |
| Toluene | ND ND | 100 | ,, | | | n | ** | н | |
| 1,1,1-Trichloroethane | ND | 100 | " | ,, | ** | ,, | " | 11 | |
| 1.1.2-Trichloroethane | ND ND | 100 | " | | ,, | | ** | 11 | |
| Trichloroethene | ND ND | 100 | ** | " | ., | ,, | ,, | н | |
| Trichlorofluoromethane | ND ND | 100 | " | ,, | ** | ,, | " | n | |
| Vinyl acetate | ND ND | | | ,, | | | " | " | |
| | ND ND | 100 100 | | ,. | ., | | | • | |
| Vinyl chloride | | | " | " " | ** | | | | |
| Total Xylenes | ND | 100 | | | | | | | |
| Surrogate: Dibromofluoromethi | | 76.8 % | | 1-111 | " | " | 11 | " | C |
| Surrogate: 1,2-Dichloroethane- | d4 | 112 % | | 1-104 | " | " | " | " | C |
| Surrogate: Toluene-d8 | | 97.6 % | 95.1 | 1-105 | " | " | " | " | |
| Surrogate: 4-Bromofluorobenze | ene | 125 % | 89.6 | 5-105 | " | " | " | n | C |

Great Lakes Analytical

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Andy Johnson, Project Manager

Page 14 of 32



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

tra Tech EMI - IL

iicago IL, 60601

0 E. Randolph Suite 4700

Project: Gary Development Landfill

Project Number: N:A

Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| alyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---------------------------|-------------------------|--------------------|----------|----------|---------|----------|----------|-----------|-------|
| (B201120-01) Waste (L) | Sampled: 01/08/02 17:00 | Received: | 01/10/02 | 10:00 | | | | | O2 |
| enaphthene | ND | 30000 | ug/kg | 1 | 2010168 | 01/11/02 | 01/11/02 | EPA 8270C | |
| enaphthylene | ND | 30000 | | u | ** | | ** | • | |
| iline | ND | 30000 | ** | " | " | " | ,, | " | |
| thracene | ND | 30000 | ** | " | " | н | " | " | |
| nzoic acid | ND | 150000 | ** | н | ** | " | ** | • | |
| nz (a) anthracene | ND | 30000 | " | " | n | ** | " | n | |
| nzo (a) pyrene | ND | 30000 | " | ** | # | ii | ** | н | |
| nzo (b) fluoranthene | ND | 30000 | ** | н | ** | Ħ | н | ** | |
| nzo (ghi) perylene | ND | . 30000 | n | " | n | * | " | n | |
| nzo (k) fluoranthene | ND | 30000 | н | ** | ** | н | ** | " | |
| nzyl alcohol | ND | 30000 | ** | ** | ** | | ** | " | |
| s(2-chloroethoxy)methane | ND | 30000 | н | " | " | " | " | ** | |
| s(2-chloroethyl)ether | ND | 30000 | " | " | " | ** | ** | ** | |
| s(2-chloroisopropyl)ether | ND | 30000 | " | " | • | н | 11 | н | |
| s(2-ethylhexyl)phthalate | ND | 99000 | " | n | 11 | ,, | ** | Ħ | |
| Bromophenyl phenyl ether | ND | 30000 | n | ** | ** | ** | ** | ** | |
| atyl benzyl phthalate | ND | 30000 | ,, | 11 | ** | ** | ** | H | |
| Chloroaniline | ND | 30000 | n | n | n | " | H | • | |
| Chloro-3-methylphenol | ND | 30000 | ** | ** | ** | * | ** | ** | |
| Chloronaphthalene | ND | 30000 | ** | ** | " | ** | н | ** | |
| Chlorophenol | ND | 30000 | 11 | " | n | n . | ** | н | |
| Chlorophenyl phenyl ether | ND | 30000 | " | • | ** | ** | •• | н | |
| hrysene | ND | 30000 | * | * | *1 | ** | • | n | |
| ibenz (a,h) anthracene | ND | 30000 | н | " | 11 | н | 14 | n | |
| ibenzofuran | ND | 30000 | ** | ** | 11 | 19 | 19 | n | |
| ,2-Dichlorobenzene | ND | 30000 | " | ** | * | n | ** | " | |
| .3-Dichlorobenzene | ND | 30000 | n | 11 | 11 | n | ** | n | |
| ,4-Dichlorobenzene | ND | 30000 | ** | " | ** | • | " | •• | |
| .3'-Dichlorobenzidine | ND | 150000 | " | ** | ** | ** | н | 11 | |
| ,4-Dichlorophenol | ND | 30000 | 19 | • | ıı . | н | ** | n | |
| Diethyl phthalate | ND | 30000 | ** | ** | " | n | " | ** | |
| .4-Dimethylphenol | ND | 30000 | ** | ** | 11 | ** | н | ** | |
| Dimethyl phthalate | ND | 30000 | ** | 11 | " | " | ** | ** | |
| Di-n-butyl phthalate | ND | 99000 | н | " | " | " | ** | н | |
| ,6-Dinitro-2-methylphenol | ND | 150000 | " | ** | | * | н | | |
| 2,4-Dinitrophenol | ND | 150000 | " | " | " | н | * | н | |
| 2.4-Dinitrotoluene | ND | 30000 | ** | н | ** | ** | " | " | |
| 2,6-Dinitrotoluene | ND | 30000 | ** | н | ** | ** | n | ** | |
| Di-n-octyl phthalate | ND | 30000 | ** | " | ** | n | * | н | |
| Fluoranthene | ND | 30000 | н | ** | н | 19 | 11 | ** | |
| Fluorene | ND | 30000 | ** | ** | ** | н | ** | ** | |
| Hexachlorobenzene | ND | 30000 | " | ** | ** | u | • | н | |
| | · | _ | | | | | | | |

Great Lakes Analytical

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Andy Johnson, Project Manager

Page 18 of 32



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| | | | | <u>`</u> | | | | | |
|-------------------------------|-------------------------|--------------------|----------|----------|---------|----------|----------|--------------|-------|
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
| D-1 (B201120-01) Waste (L) | Sampled: 01/08/02 17:00 | Received: | 01/10/02 | 10:00 | | | | | O2 |
| Hexachlorobutadiene | ND | 30000 | ug/kg | l | 2010168 | 01/11/02 | 01/11/02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 30000 | н | ** | ** | н | ** | н | |
| Hexachloroethane | ND | 30000 | н | ** | ** | ** | " | ** | |
| Indeno (1,2,3-cd) pyrene | ND | 30000 | ii . | " | " | * | ** | ** | |
| Isophorone | ND | 30000 | *1 | " | ** | " | 11 | • | |
| 2-Methylnaphthalene | ND | 30000 | ** | " | ** | * | н | n | |
| o-Cresol | ND | 30000 | н | 11 | ** | " | ** | н | |
| m,p-Cresols | ND | 30000 | ** | 19 | " | " | " | II . | |
| hthalene | ND | . 30000 | | н | ** | ** | , | н | |
| 2-Nitroaniline | ND | 150000 | • | н | н | ** | ** | н | |
| 3-Nitroaniline | ND | 150000 | 19 | ** | *1 | 11 | | n | |
| 4-Nitroaniline | ND | 150000 | | ** | " | n | ** | | |
| Nitrobenzene | ND | 30000 | | ,, | 11 | ** | ** | n | |
| 2-Nitrophenol | ND | 30000 | ** | ** | n | ** | n | # | |
| 4-Nitrophenol | ND | 150000 | n | ** | " | ** | n | * | |
| N-Nitrosodi-n-propylamine | ND | 30000 | н | | н | H | 11 | * | |
| N-Nitrosodiphenylamine | ND | 30000 | ** | * | ш | " | n n | н | |
| Pentachlorophenol | ND | 150000 | * | | н | ** | н | ** | |
| Phenanthrene | ND | 30000 | •• | | н | " | | ** | |
| Phenol | ND | 30000 | | ** | ** | ** | ** | ,, | * |
| Pyrene | ND | 30000 | | | ** | • | ** | •• | |
| 1,2,4-Trichlorobenzene | ND | 30000 | | ** | •• | | ** | ** | |
| 2,4,5-Trichlorophenol | ND | 150000 | ** | ** | ** | * | ** | ** | |
| 2,4,6-Trichlorophenol | ND | 30000 | ** | | ,, | ** | н | ** | |
| Surrogate: 2-Fluorophenol | | 90.0 % | 50- | 130 | " | | " | ,, | |
| rogate: Phenol-d6 | | 88.1 % | | 130 | " | " | " | ,, | |
| rogate: Nitrobenzene-d5 | | 84.5 % | | 130 | " | " | " | ,, | |
| Surrogate: 2-Fluorobiphenyl | | 96.3 % | | 130 | " | " | " | ,, | |
| Surrogate: 2,4,6-Tribromophen | nol | 123 % | | 130 | " | " | ,, | ,, | |
| Surrogate: p-Terphenyl-d14 | ivi | 130 % | | 130 | " | ,, | " | ,, | |
| Surroguie, p-respirentistalia | | 150 70 | 50- | 150 | | | | | |

Great Lakes Analytical

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A

Chicago IL, 60601

Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|--------------------------------------|-------------------------|--------------------|----------|----------|---------|----------|----------|-----------|------|
| D-2 (B201120-02) Waste (L) | Sampled: 01/08/02 17:15 | Received: | 01/10/02 | 10:00 | | | | | О |
| Acenaphthene | ND. | 30000 | ug/kg | 1 | 2010168 | 01/11/02 | 01 11/02 | EPA 8270C | |
| Acenaphthylene | ND | 30000 | ** | " | " | " | ** | * | |
| Aniline | ND | 30000 | * | 19 | " | н | ** | n | |
| Anthracene | ND | 30000 | ** | ** | ** | " | н | " | |
| Benzoic acid | ND | 150000 | ** | • | ** | " | n | n | |
| Benz (a) anthracene | ND | 30000 | " | 11 | ** | " | " | n | |
| Benzo (a) pyrene | ND | 30000 | " | " | " | 11 | " | * | |
| Benzo (b) fluoranthene | ND | 30000 | " | " | ** | H | " | 11 | |
| Benzo (ghi) perylene | ND | · 30000 | ** | " | ** | n | " | " | • |
| Benzo (k) fluoranthene | ND | 30000 | n | ** | ** | 11 | " | " | |
| Benzyl alcohol | ND | 30000 | ** | " | | n | 19 | ** | |
| Bis(2-chloroethoxy)methane | ND | 30000 | n | ** | | ** | 11 | ** | |
| Bis(2-chloroethyl)ether | ND | 30000 | ** | н | " | 11 | " | ** | |
| Bis(2-chloroisopropyl)ether | ND | 30000 | " | " | 11 | " | " | ** | |
| Bis(2-ethylhexyl)phthalate | ND | 99000 | ** | ** | | " | ** | " | |
| 4-Bromophenyl phenyl ether | ND | 30000 | " | " | " | H | | ** | |
| Butyl benzyl phthalate | 2990000 | 600000 | " | 20 | н | n | 01/15/02 | ** | |
| 4-Chloroaniline | ND | 30000 | " | 1 | n | " | 01/11/02 | " | |
| 4-Chloro-3-methylphenol | ND | 30000 | n | n | n | ** | ** | ** | |
| 2-Chloronaphthalene | ND | 30000 | | 19 | ** | " | н | ** | |
| 2-Chlorophenol | ND | 30000 | н | n | ** | ** | n | ** | |
| 4-Chlorophenyl phenyl ether | ND | 30000 | ** | 11 | " | ** | | н | |
| Chrysene | ND | 30000 | 19 | 11 | • | * | 11 | * | |
| Dibenz (a,h) anthracene | ND | 30000 | " | 11 | ** | * | tt | " | |
| Dibenzofuran | ND | 30000 | ** | ** | ** | ** | Ħ | •• | |
| 1,2-Dichlorobenzene | ND | 30000 | ** | н | H | ** | ** | ** | |
| 1,3-Dichlorobenzene | ND | 30000 | •• | н | • | ** | ** | ,, | |
| 1,4-Dichlorobenzene | ND | 30000 | | ** | ** | ** | " | N | |
| 3,3'-Dichlorobenzidine | ND | 150000 | ** | •• | | Ħ | н | н | |
| 2,4-Dichlorophenol | ND | 30000 | ** | ** | " | ** | " | н | |
| Diethyl phthalate | ND | 30000 | ** | ** | " | | 11 | H | |
| 2,4-Dimethylphenol | ND | 30000 | ** | ** | ** | ** | 11 | " | |
| Dimethyl phthalate | ND | 30000 | н | | ** | ** | 10 | H | |
| Di-n-butyl phthalate | ND | 99000 | н | ** | ** | ** | " | ** | |
| 4,6-Dinitro-2-methylphenol | ND | 150000 | н | ** | ** | | " | н | |
| | ND | 150000 | н | н | ** | * | ** | ** | |
| 2,4-Dinitrophenol 2,4-Dinitrotoluene | ND ND | 30000 | " | n | н | * | ** | n . | |
| 2,6-Dinitrotoluene | ND | 30000 | ** | 11 | н | ** | | н | |
| | ND ND | 30000 | | ** | | " | • | ** | |
| Di-n-octyl phthalate | ND ND | 30000 | | •• | н | н | • | ** | |
| Fluoranthene | ND ND | 30000 | ,, | | н | ··· | | | |
| Fluorene | | 30000 | н | * | ** | " | | •• | |
| Hexachlorobenzene | ND | 00000 | | | | | | | |

Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|-------------------------------|-------------------------|--------------------|------------|----------|---------|----------|----------|-----------|------|
| D-2 (B201120-02) Waste (L) | Sampled: 01/08/02 17:15 | Received: | 01/10/02 1 | 0:00 | | | | | 0 |
| Hexachlorobutadiene | ND | 30000 | ug/kg | 1 | 2010168 | 01/11/02 | 01/11/02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 30000 | " | 11 | * | ** | * | u u | |
| Hexachloroethane | ND | 30000 | " | 11 | # | * | " | u u | |
| Indeno (1,2,3-cd) pyrene | ND | 30000 | 11 | 11 | • | " | ** | " | |
| Isophorone | ND | 30000 | " | " | * | • | ** | ** | |
| 2-Methylnaphthalene | ND | 30000 | " | " | • | " | ** | ** | |
| o-Cresol | ND | 30000 | " | n | " | " | " | • | |
| m.p-Cresols | ND | 30000 | н | u | ** | " | | " | |
| hthalene | ND | - 30000 | н | " | ,, | n n | " | " | |
| 2-Nitroaniline | ND | 150000 | H | ** | •• | · · | •• | ** | |
| 3-Nitroaniline | ND | 150000 | ** | 19 | 11 | ** | ** | * | |
| 4-Nitroaniline | ND | 150000 | ** | ** | n | " | ** | ** | |
| Nitrobenzene | ND | 30000 | ** | ** | • | •• | 11 | * | |
| 2-Nitrophenol | ND | 30000 | •• | ** | 11 | • | 11 | ** | |
| 4-Nitrophenol | ND | 150000 | | ** | н | ** | 11 | n | |
| N-Nitrosodi-n-propylamine | ND | 30000 | | ** | н | • | н | # | |
| N-Nitrosodiphenylamine | ND | 30000 | | •• | ** | • | n | | |
| Pentachlorophenol | ND | 150000 | ** | * | n | ** | " | ** | |
| Phenanthrene | ND | 30000 | | ** | " | " | ** | ** | |
| Phenol | ND | 30000 | 11 | ** | | ** | | 11 | |
| Pyrene | ND | 30000 | " | ** | * | н | * | н | |
| 1.2.4-Trichlorobenzene | ND | 30000 | • | ** | ** | n | | ** | |
| 2,4,5-Trichlorophenol | ND | 150000 | • | ** | * | * | | ** | |
| 2,4,6-Trichlorophenol | ND | 30000 | | ** | ** | * | # | ** | |
| Surrogate: 2-Fluorophenol | | 74.9 % | 50-1 | 30 | | " | | # | |
| rogate: Phenol-d6 | | 77.4 % | 50-1 | | " | # | n | n | |
| ⇒rrogate: Nitrobenzene-d5 | | 75.2 % | 50-1 | | " | " | " | " | |
| Surrogate: 2-Fluorobiphenyl | | 82.0 % | 50-1 | | " | n | n | n | |
| Surrogate: 2,4,6-Tribromophen | ol | 111% | 50-1 | | " | " | " | " | |
| Surrogate: p-Terphenyl-d14 | ~ · | 142 % | 50-1 | | " | " | • | ,, | C |

Great Lakes Analytical

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Andy Johnson, Project Manager

Page 21 of 32



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

tra Tech EMI - IL

ticago IL, 60601

Project: Gary Development Landfill

0 E. Randolph Suite 4700

Project Number: N/A

Reported:

Project Manager: Lisa Graczyk

01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| ılyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---------------------------|-------------------------|--------------------|-----------|----------|---------|----------|----------|-----------|-------|
| B (B201120-03) Waste (L) | Sampled: 01/09/02 14:45 | Received | : 01/10/0 | 2 10:00 | | | | | O2 |
| naphthene | ND | 30000 | ug kg | 1 | 2010168 | 01/11/02 | 01/11/02 | EPA 8270C | |
| :naphthylene | ND | 30000 | ** | ** | n n | II . | 11 | " | |
| line | ND | 30000 | | ** | " | a | n | •• | |
| hracene | ND | 30000 | 11 | ** | н | ** | 11 | *1 | |
| zoie acid | ND | 150000 | " | " | | " | n | n | |
| ız (a) anthracene | ND | 30000 | ** | " | " | " | " | н | |
| 120 (a) pyrene | ND | 30000 | ** | ** | u | " | 11 | н | |
| izo (b) fluoranthene | ND | 30000 | ** | ** | ** | u u | ** | H | |
| ızo (ghi) perylene | ND | - 30000 | | ** | •• | " | n . | ** | |
| 120 (k) fluoranthene | ND | 30000 | " | 11 | 11 | n | ** | н | |
| nzyl alcohoł | ND | 30000 | ** | u | | н | " | ** | |
| (2-chloroethoxy)methane | ND | 30000 | " | ** | " | " | " | " | |
| (2-chloroethyl)ether | ND | 30000 | ,, | •• | " | ** | | н | |
| (2-chloroisopropyl)ether | ND | 30000 | " | " | ** | 11 | ** | ** | |
| (2-ethylhexyl)phthalate | ND | 99000 | ** | 11 | " | II . | ** | • | |
| 3romophenyl phenyl ether | ND | 30000 | * | ** | ** | ** | " | ** | |
| tyl benzyl phthalate | ND | 30000 | н | ** | ** | " | 11 | u | |
| Chloroaniline | ND | 30000 | ** | ** | ,, | * | н | ** | |
| Chloro-3-methylphenol | ND | 30000 | | ** | ** | ** | | ** | |
| Chloronaphthalene | ND | 30000 | ** | n | n n | ** | ** | | |
| Chlorophenol | ND | 30000 | " | ** | ** | ** | | ** | |
| Chlorophenyl phenyl ether | ND | 30000 | н | n | ** | • | * | # | |
| irysene | ND | 30000 | ** | " | ** | n | " | n | |
| benz (a,h) anthracene | ND | 30000 | н | " | ** | • | 11 | •• | |
| benzofuran | ND | 30000 | " | " | ** | • | " | ** | |
| 2-Dichlorobenzene | ND | 30000 | " | ** | ** | n | ** | н | |
| 3-Dichlorobenzene | ND | 30000 | * | ** | 11 | н | 11 | н | |
| 1-Dichlorobenzene | ND | 30000 | 11 | 11 | н | " | n | # | |
| 3'-Dichlorobenzidine | ND | 150000 | ** | н | " | • | ** | | |
| 4-Dichlorophenol | ND | 30000 | ** | | | " | ** | ** | |
| ethyl phthalate | ND | 30000 | * | " | ** | " | * | н | |
| 4-Dimethylphenol | ND | 30000 | ** | | ** | ** | * | " | |
| imethyl phthalate | ND | 30000 | н | п | " | ** | 11 | " | |
| i-n-butyl phthalate | ND | 99000 | ** | ** | ** | • | ш | • | |
| 6-Dinitro-2-methylphenol | ND | 150000 | н | н | | | H | ** | |
| 4-Dinitrophenol | ND | 150000 | " | | ** | н | • | н | |
| 4-Dinitrotoluene | ND | 30000 | | " | 11 | | • | ** | |
| 6-Dinitrotoluene | ND | 30000 | н | н | н | ,, | н | ** | |
| i-n-octyl phthalate | ·ND | 30000 | ** | H | ** | * | # | ** | |
| uoranthene | ND | 30000 | | н | ** | ** | • | н | |
| uorene | ND | 30000 | ** | ** | ** | н | ** | Ħ | |
| exachlorobenzene | ND | 30000 | 11 | 11 | u | " | " | " | |
| - LEGITOLOGOLIZONO | | 23003 | | | | | | | |

Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson, Project Manager

Page 22 of 32



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| | | D | | nary tica | | | • | | |
|--------------------------------|-------------------------|--------------------|-------------|-----------|---------|----------|----------|-----------|------|
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
| D-9B (B201120-03) Waste (L) | Sampled: 01/09/02 14:45 | Received | 1: 01/10/02 | 10:00 | | | | | O |
| Hexachlorobutadiene | ND | 30000 | ug/kg | 1 | 2010168 | 01/11/02 | 01/11/02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 30000 | н | ** | н | ** | " | ** | |
| Hexachloroethane | ND | 30000 | " | | ** | n | | . ** | |
| Indeno (1,2,3-cd) pyrene | ND | 30000 | * | * | " | ** | | ** | |
| Isophorone | ND | 30000 | " | ** | н | " | ** | n | |
| 2-Methylnaphthalene | 202000 | 30000 | * | " | ** | | ** | , | |
| o-Cresol | ND | 30000 | | ** | ** | ** | ** | H | |
| m,p-Cresols | ND | 30000 | ** | 11 | •• | ti . | ** | H | |
| hthalene | 53000 | . 30000 | н | n | • . | ** | ** | н | |
| ≥¬Nitroaniline | ND | 150000 | | 11 | ** | 11 | ** | ** | |
| 3-Nitroaniline | ND | 150000 | ** | tt | н | 11 | ** | ** | |
| 4-Nitroaniline | ND | 150000 | ** | 19 | n | n | ** | # | |
| Nitrobenzene | ND | 30000 | * | " | u | • | ** | ** | |
| 2-Nitrophenol | ND | 30000 | • | • | n | " | ** | ** | |
| 4-Nitrophenol | ND | 150000 | * | • | •• | " | 11 | n | |
| N-Nitrosodi-n-propylamine | ND | 30000 | " | ** | | ** | н | ** | |
| N-Nitrosodiphenylamine | ND | 30000 | * | * | | * | н | | |
| Pentachlorophenol | ND | 150000 | * | " | • | * | •• | н | |
| Phenanthrene | 59200 | 30000 | н | н | ** | " | • | n | |
| Phenol | ND | 30000 | ** | н | | " | ** | ** | |
| Pyrene | ND | 30000 | ** | " | ,, | " | " | ** | |
| 1,2,4-Trichlorobenzene | ND | 30000 | * | ** | n | ** | * | ** | |
| 2,4,5-Trichlorophenol | ND | 150000 | ** | * | н | ** | n | ** | |
| 2,4,6-Trichlorophenol | ND | 30000 | * | H | ** | " | н | # | |
| Surrogate: 2-Fluorophenol | | 72.6 % | 50- | 130 | | " | " | " | |
| rogate: Phenol-d6 | | 71.7% | 50- | - | ,, | " | ,, | ,, | |
| rogate: Nitrobenzene-d5 | | 76.3 % | 50- | | " | " | " | ". | |
| Surrogate: 2-Fluorobiphenyl | | 72.9 % | 50- | | " | " | " | , | |
| Surrogate: 2,4,6-Tribromopheno | ol . | 107 % | 50- | - | " | ,, | ,, | ,, | |
| Surrogate: p-Terphenyl-d14 | • | 136 % | 50- | | " | " | " | " | C |

Great Lakes Analytical

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

: Е

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago 1L, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|-----------------------------|-------------------------|--------------------|-------|----------|---------|----------|-----------|-----------|------|
| L | | | | | Batch | rrepared | Allalyzed | Method | |
| T-4 (B201120-04) Waste (L) | Sampled: 01/09/02 15:40 | | | 10:00 | | | | | |
| Acenaphthene | ND | 30000 | ug/kg | 1 | 2010168 | 01/11/02 | 01/11/02 | EPA 8270C | |
| Acenaphthylene | ND | 30000 | * | " | " | ** | ** | " | |
| Aniline | ND _ | 30000 | H | " | " | ,, | " | " | |
| Anthracene | 67400 J | 30000 | ** | 11 | ** | ** | | | |
| Benzoic acid | ND | 150000 | ** | н | n | 11 | n | | |
| Benz (a) anthracene | ND | 30000 | ** | " | 11 | ** | ** | 11 | |
| Benzo (a) pyrene | ND | 30000 | ** | " | " | " | ** | n | |
| Benzo (b) fluoranthene | ND | 30000 | n | n | ** | ** | ** | n | |
| Benzo (ghi) perylene | ND | . 30000 | " | ** | ** | " | ** | II. | |
| Benzo (k) fluoranthene | ND | 30000 | н | " | ** | ** | ** | " | |
| Benzyl alcohol | ND | 30000 | " | " | ** | ** | ** | | |
| Bis(2-chloroethoxy)methane | ND | 30000 | ** | ** | ** | ** | • | н | |
| Bis(2-chloroethyl)ether | ND | 30000 | ** | " | H | ** | ** | " | |
| Bis(2-chloroisopropyl)ether | ND | 30000 | ** | " | н | ** | ** | " | |
| Bis(2-ethylhexyl)phthalate | ND | 99000 | " | " | " | " | ** | | |
| 4-Bromophenyl phenyl ether | ND | 30000 | " | " | * | " | • | tr . | |
| Butyl benzyl phthalate | ND | 30000 | n | n | n | ** | ** | н | |
| 1-Chloroaniline | ND | 30000 | " | | " | ,, | • | H | |
| 4-Chloro-3-methylphenol | ND | 30000 | | | " | * | • | " | |
| 2-Chloronaphthalene | ND | 30000 | * | 11 | н | * | " | " | |
| 2-Chlorophenol | ND | 30000 | * | ** | н | * | 11 | ** | |
| 4-Chlorophenyl phenyl ether | ND | 30000 | n | " | " | * | " | # | |
| Chrysene | ND | 30000 | н | ** | " | ** | ** | ** | |
| Dibenz (a,h) anthracene | ND | 30000 | ** | * | n | n | " | * | |
| Dibenzofuran | ND | 30000 | " | ,, | ** | ** | | • | |
| 1,2-Dichlorobenzene | ND | 30000 | ** | " | " | ,, | ** | • | |
| 1,3-Dichlorobenzene | ND | 30000 | ** | ** | ,, | | н | • | |
| 1,4-Dichlorobenzene | ND | 30000 | ** | ** | ** | ** | 10 | ** | |
| 3,3'-Dichlorobenzidine | ND ND | 150000 | | " | ** | | н | • | |
| 2,4-Dichlorophenol | ND ND | 30000 | ** | ** | * | ,, | " | •• | |
| | ND ND | 30000 | | 11 | ** | * | н | ,, | |
| Diethyl phthalate | ND ND | 30000 | | ,, | | | H | # | |
| 2,4-Dimethylphenol | ND ND | 30000 | н | ** | * | | ** | ** | |
| Dimethyl phthalate | | 99000 | 11 | ** | | | | ** | |
| Di-n-butyl phthalate | ND ND | | n | ** | ** | ** | " | ** | |
| 4,6-Dinitro-2-methylphenol | ND | 150000 | | ** | ,, | * | | ,, | |
| 2,4-Dinitrophenol | ND | 150000 | " | | ** | 10 | | •• | |
| 2,4-Dinitrotoluene | ND | 30000 | " | | ,, | " | | •• | |
| 2,6-Dinitrotoluene | ND | 30000 | | ,, | " " | •• | 11 | ,, | |
| Di-n-octyl phthalate | ND | 30000 | - | | " | | ,, | * | |
| Fluoranthene | ND T | 30000 | | | " " | | | | |
| Fluorene | 227000 了 | 30000 | ** | " | '' H | " | •• | | |
| Hexachlorobenzene | ND | 30000 | * | " | н | ** | ** | •• | |

Great Lakes Analytical

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1-30-02



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| | | | uncs 11. | | | | | | |
|-------------------------------|-------------------------|--------------------|----------|----------|---------|----------|-------------|---------------------------------------|-------|
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
| T-4 (B201120-04) Waste (L) | Sampled: 01/09/02 15:40 | Received: | 01/10/02 | 10:00 | | | | | 0 |
| Hexachlorobutadiene | ŃD | 30000 | ug/kg | l | 2010168 | 01/11/02 | 01/11/02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 30000 | * | # | ** | ** | " | n | |
| Hexachloroethane | ND | 30000 | rt . | n | ** | ** | | 11 | |
| Indeno (1,2,3-cd) pyrene | ND | 30000 | ** | ** | ** | " | 17 | II . | |
| Isophorone | ND | 30000 | . " | ** | n | " | ** | II . | |
| 2-Methylnaphthalene | 6020000 J | 300000 | ** | 10 | ** | " | 01/15/02 | н | |
| o-Cresol | ND | 30000 | " | 1 | ** | н | 01/11/02 | н | |
| m,p-Cresols | ND | 30000 | 11 | ** | н | н | •• | ** | |
| phthalene | 2080000 J | .300000 | н | 10 | ** | н | 01/15/02 | " | |
| z-Nitroaniline | ND | 150000 | " | 1 | ** | н | 01/11/02 | • | |
| 3-Nitroaniline | ND | 150000 | н | | ** | H | " | ** | |
| 4-Nitroaniline | ND | 150000 | ** | ** | | ** | " | •• | |
| Nitrobenzene | ND | 30000 | ** | ** | n | ** | n | •• | |
| 2-Nitrophenol | ND | 30000 | ** | " | u u | ** | u | • | |
| 4-Nitrophenol | ND | 150000 | " | ** | | | n | * | |
| N-Nitrosodi-n-propylamine | ND | 30000 | ** | " | н | * | ** | * | |
| N-Nitrosodiphenylamine | ND | 30000 | | ** | 11 | | | n | |
| Pentachlorophenol | ND | 150000 | " | ** | ** | ** | | • | |
| Phenanthrene | 939000 ブ | 30000 | • | | ** | * | ** | n | |
| Phenol | ND | 30000 | * | * | ** | n | ** | n | |
| Pyrene | 397000 ブ | 30000 | • | | | , | | ** | |
| 1,2,4-Trichlorobenzene | ND | 30000 | | ** | # | | * | H | |
| 2,4,5-Trichlorophenol | ND | 150000 | | ** | * | ** | * | ** | |
| 2,4,6-Trichlorophenol | ND | 30000 | * | * | • | " | * | * | |
| Surrogate: 2-Fluorophenol | | 78.4 % | 50- | 130 | " | ,, | " | , , , , , , , , , , , , , , , , , , , | |
| ~ rrogate: Phenol-d6 | | 86.9 % | 50- | | " | " | " | " | |
| _rrogate: Nitrobenzene-d5 | | 185 % | 50- | | " | " | " | " | 0 |
| Surrogate: 2-Fluorobiphenyl | | 76.0 % | 50- | 130 | " | " | " | " | |
| Surrogate: 2,4,6-Tribromophen | iol | 88.0 % | 50- | | " | * | " | " | |
| Surrogate: p-Terphenyl-d14 | | 264 % | 50- | | " | " | •• | " | 0 |

Great Lakes Analytical

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1.y. 1-30-02



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

: E

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A

Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------------------|-------------------------|--------------------|------------|----------|---------|----------|----------|-----------|-------|
| D-13 (B201120-05) Waste (L) | Sampled: 01/09/02 15:45 | Received | : 01/10/02 | 10:00 | | | | | O2 |
| Acenaphthene | ND | 30000 | ug/kg | 1 | 2010168 | 01/11/02 | 01/11/02 | EPA 8270C | |
| Acenaphthylene | ND | 30000 | 11 | ** | u | " | *1 | rr . | |
| Aniline | ND | 30000 | n | " | ** | ** | " | 15 | |
| Anthracene | ND | 30000 | " | " | " | 0 | " | n | |
| Benzoic acid | ND | 150000 | 11 | " | " | | " | n | |
| Benz (a) anthracene | ND | 30000 | " | | н | II . | " | " | |
| Benzo (a) pyrene | ND | 30000 | ** | | " | u | " | " | |
| Benzo (b) fluoranthene | ND | 30000 | ** | " | " | II | 11 | ,, | |
| Benzo (ghi) perylene | ND | 30000 | ** | " | " | n | ** | ,, | |
| Benzo (k) fluoranthene | ND | 30000 | " | " | " | 11 | ** | " | |
| Benzyl alcohol | ND | 30000 | " | " | " | II . | н | # | |
| Bis(2-chloroethoxy)methane | ND | 30000 | " | n | 11 | ** | ** | * | |
| Bis(2-chloroethyl)ether | ND | 30000 | " | 11 | 11 | n | н | * | |
| Bis(2-chloroisopropyl)ether | ND | 30000 | ** | ** | 11 | n | a | 11 | |
| Bis(2-ethylhexyl)phthalate | ND | 99000 | n | ** | ** | н | " | ** | |
| 4-Bromophenyl phenyl ether | ND | 30000 | н | " | ** | н . | ** | ** | |
| Butyl benzyl phthalate | 2930000 | 600000 | " | 20 | " | ** | 01/15/02 | P . | |
| 4-Chloroaniline | ND | 30000 | " | 1 | * | 11 | 01/11/02 | ** | |
| 4-Chloro-3-methylphenol | ND | 30000 | " | n | ** | " | " | n | |
| 2-Chloronaphthalene | ND | 30000 | " | n | ** | ** | ** | ıı | |
| 2-Chlorophenol | ND | 30000 | ** | 17 | п | " | н | " | |
| 4-Chlorophenyl phenyl ether | ND | 30000 | ** | 11 | ** | 11 | н | • | |
| Chrysene | ND | 30000 | н | ** | " | " | н | • | |
| Dibenz (a,h) anthracene | ND | 30000 | n | ** | ** | ** | | + | |
| Dibenzofuran | ND | 30000 | ** | ** | " | " | | ** | |
| 1,2-Dichlorobenzene | ND | 30000 | " | ** | ** | " | " | " | |
| 1,3-Dichlorobenzene | ИD | 30000 | n | | " | " | н | •• | _ |
| 1.4-Dichlorobenzene | ND | 30000 | n | | • | * | н | ,, | |
| 3,3'-Dichlorobenzidine | ND | 150000 | " | ** | ** | | n n | , | |
| 2,4-Dichlorophenol | ND | 30000 | ** | ** | " | * | " | n | |
| Diethyl phthalate | ND | 30000 | | ** | n | H | " | " | |
| 2,4-Dimethylphenol | ND | 30000 | ** | ** | ,, | • | н | * | |
| Dimethyl phthalate | ND | 30000 | ** | " | " | * | ** | ** | |
| Di-n-butyl phthalate | ND | 99000 | ** | ** | ** | ** | n | ** | |
| 4,6-Dinitro-2-methylphenol | ND | 150000 | ** | ** | * | ** | ** | # | |
| 2,4-Dinitrophenol | ND | 150000 | н | ** | ** | ** | n | н | |
| 2,4-Dinitrotoluene | ND | 30000 | ** | *1 | ** | ** | * | # | |
| 2,6-Dinitrotoluene | ND | 30000 | н | q | ** | ** | ** | ** | |
| Di-n-octyl phthalate | ND | 30000 | " | п | н | ** | • | • | |
| Fluoranthene | ND | 30000 | " | 11 | n | ** | * | • | |
| Fluorene | ND | 30000 | 19 | н | , | ** | n | " | |
| Hexachlorobenzene | ND | 30000 | ** | " | " | | н | u | |

Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson, Project Manager

Page 26 of 32



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| | | Or car L | arcs Al | iary tree | ** | | | | |
|--------------------------------|-------------------------|--------------------|------------|-----------|---------|----------|-------------|-----------|-------|
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
| D-13 (B201120-05) Waste (L) | Sampled: 01/09/02 15:45 | Received | : 01/10/02 | 10:00 | | | | | 0 |
| Hexachlorobutadiene | ND | 30000 | ug/kg | l | 2010168 | 01/11/02 | 01/11/02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 30000 | ** | ** | " | " | ** | n | |
| Hexachloroethane | ND | 30000 | " | н | " | * | • | n | |
| Indeno (1,2,3-cd) pyrene | ND | 30000 | " | * | • | • | 11 | n | |
| Isophorone | ND | 30000 | " | ** | ** | " | n | n | |
| 2-Methylnaphthalene | ND | 30000 | н | ** | 11 | 11 | ** | " | |
| o-Cresol | ND | 30000 | н | ** | " | " | • | н | |
| m,p-Cresols | ND | 30000 | u | | n | н | ** | н | |
| hthalene | ND | - 30000 | н | н | ** | | ** | н | |
| Z-Nitroaniline | ND | 150000 | ** | n | ** | " | ** | • | |
| 3-Nitroaniline | ND | 150000 | ** | ** | 11 | 11 | ** | ** | |
| 4-Nitroaniline | ND | 150000 | " | " | н | н | ** | ** | |
| Nitrobenzene | ND | 30000 | • | • | н | ** | ** | ** | |
| 2-Nitrophenol | ND | 30000 | " | ** | н | ** | •• | n | |
| 4-Nitrophenol | ND | 150000 | ** | ** | " | ** | ** | ,, | |
| N-Nitrosodi-n-propylamine | ND | 30000 | , | | " | | ** | * | |
| N-Nitrosodiphenylamine | ND | 30000 | " | ** | " | • | ** | * | |
| Pentachlorophenol | ND | 150000 | " | " | ** | | ** | • | |
| Phenanthrene | ND | 30000 | ** | | | ** | | •• | |
| Phenol | ND | 30000 | n | | | | н | ** | |
| Pyrene | ND | 30000 | н | 11 | ** | n | | ** | |
| 1,2,4-Trichlorobenzene | ND | 30000 | н | н | ** | ** | ** | n | |
| 2,4,5-Trichlorophenol | ND | 150000 | | ** | 11 | n | ** | 11 | |
| 2,4,6-Trichlorophenol | ND | 30000 | H | | н | н | ** | H | |
| Surrogate: 2-Fluorophenol | • | 78.4 % | 50-1 | 30 | . ,, | | | " | |
| rogate: Phenol-d6 | | 80.5 % | 50-1 | | ,, | " | " | " | |
| Sarrogate: Nitrobenzene-d5 | | 78.2 % | 50-1 | | ,, | ,, | * | " | |
| Surrogate: 2-Fluorobiphenyl | | 88.6 % | 50-1 | | " | ,, | " | " | |
| Surrogate: 2,4,6-Tribromopheno | n/ | 89.0 % | 50-1 | | 11 | ,, | " | " | |
| Surrogate: p-Terphenyl-d14 | Л | 146 % | 50-1 | | " | ,, | " | " | o |
| Surrogate: p-rerpnenyt-a14 | | 140 70 | 20-1 | JU | | | | | U |

Great Lakes Analytical

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

: [

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A

Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| D-12 (B201120-06) Waste (L) Sampled: 01/09/02 15:50 Received: 01/10/02 10:00 | Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--|-----------------------------|-------------------------|--------------------|-----------|----------|---------|----------|----------|-----------|-------|
| Acenaphthylene | D-12 (B201120-06) Waste (L) | Sampled: 01/09/02 15:50 | Received | : 01/10/0 | 2 10:00 | | | | | 02 |
| Anilne | Acenaphthene | | 30000 | ug/kg | 1 | 2010168 | 01/11/02 | 01/12/02 | EPA 8270C | |
| Anthracene | Acenaphthylene | ND | 30000 | " | " | ** | ** | ** | 11 | |
| Anthracene ND 30000 | Aniline | ND | 30000 | ** | | " | ** | " | II . | |
| Benzic and mitracene ND 30000 | Anthracene | ND | 30000 | " | ** | 11 | " | ** | ti . | |
| Benzo (a) pyrene | Benzoic acid | ND | 150000 | ** | r | ** | " | ** | n | |
| Benzo (a) Pyrene ND 30000 | Benz (a) anthracene | ND | 30000 | " | ** | n | * | ** | ** | |
| Benzo (ghi) perylene ND 30000 " " " " Benzo (s) Huoranthene ND 30000 " <t< td=""><td>Benzo (a) pyrene</td><td>ND</td><td>30000</td><td>**</td><td>**</td><td>11</td><td>"</td><td>**</td><td>**</td><td></td></t<> | Benzo (a) pyrene | ND | 30000 | ** | ** | 11 | " | ** | ** | |
| Benzo (k) fluoranthene | Benzo (b) fluoranthene | ND | 30000 | ** | ** | и | " | ** | et | |
| Benzy alcohol ND 30000 | Benzo (ghi) perylene | ND | . 30000 | H | 19 | ** | 11 | ** | н | |
| Benzy actions ND 30000 | Benzo (k) fluoranthene | ND | 30000 | N | и | ** | ** | ** | н | |
| Bist2-chloroethylyether | Benzyl alcohol | ND | 30000 | 11 | ** | 11 | 11 | " | н | |
| Bis(2-chloroethy) teher | Bis(2-chloroethoxy)methane | ND | 30000 | * | " | * | " | " | н | |
| Bis(2-chyloroisopropyl)ether ND 30000 " | Bis(2-chloroethyl)ether | ND | 30000 | " | * | ** | * | ,, | ** | |
| Bis(2-ethylhexyl)phthalate | • | ND | 30000 | ** | ** | ** | ** | 19 | ** | |
| 4-Bromophenyl phenyl ether ND 30000 """""""""""""""""""""""""""""""""""" | • • • | ND | 99000 | ** | | * | * | ** | ** | |
| Butyl benzyl phthalate | | ND | 30000 | n, | | ** | * | ** | * | |
| 4-Chloroanitine ND 30000 """""""""""""""""""""""""""""""""""" | | ND | 30000 | ** | n | • | " | ** | * | |
| 4-Chloro-s-metnylphenol ND 30000 " " " " " " " " " " " " " " " " " | | | 30000 | * | n | ** | ** | •• | • | |
| 2-Chloronaphthalene ND 30000 " <td>4-Chloro-3-methylphenol</td> <td>ND</td> <td>30000</td> <td>"</td> <td>n</td> <td>**</td> <td>*</td> <td>**</td> <td>n</td> <td></td> | 4-Chloro-3-methylphenol | ND | 30000 | " | n | ** | * | ** | n | |
| 2-Chlorophenol ND 30000 " " " " " " " " " " " " " " " " " | | ND | 30000 | • | ** | " | * | " | n | |
| 4-Chlorophenyl phenyl ether ND 30000 " | | ND | 30000 | Ħ | ,, | 11 | ** | •• | ** | |
| Chrysene ND 30000 " < | | | | H | ** | ** | H | n | • | |
| Dibenz (a,h) anthracene ND 30000 " | | | 30000 | ** | н | ** | ** | * | • | |
| Dibenzofuran ND 30000 | | | | ** | * | " | " | • | " | |
| 1,2-Dichlorobenzene | | | | * | * | ** | " | ** | n | |
| 1,3-Dichlorobenzene ND 30000 """""""""""""""""""""""""""""""""""" | | | | ** | ** | ** | ** | ** | * | |
| 1,4-Dichlorobenzene | | | | ** | 11 | ** | " | " | H | |
| 3,3'-Dichlorobenzidine ND 150000 " " " " " " " " " " " " " " " " " | · | | | ** | ** | ** | ** | # | н | |
| 2,4-Dichlorophenol ND 30000 " " " " " " " " " " " " " " " " " " " | | | | ** | 11 | ,, | ** | * | 11 | |
| Diethyl phthalate ND 30000 " | | | | ** | 11 | ** | ** | ** | ** | |
| 2,4-Dimethylphenol ND 30000 " <td></td> <td></td> <td></td> <td></td> <td>14</td> <td>**</td> <td>*</td> <td>"</td> <td>11</td> <td></td> | | | | | 14 | ** | * | " | 11 | |
| Dimethyl phthalate | | | | ** | 11 | ** | ** | ** | 11 | |
| Di-n-butyl phthalate | | | | " | 11 | ** | " | ** | ** | |
| 4,6-Dinitro-2-methylphenol ND 150000 " | * * | | | н | 11 | ** | " | | ** | |
| 2,4-Dinitrophenol ND 150000 " " " " " " " " " " " " " " " " " " " | | | | " | ** | н | ** | ** | • | |
| 2,4-Dinitrotoluene ND 30000 " <td></td> <td></td> <td></td> <td>н</td> <td>11</td> <td>н</td> <td>**</td> <td>**</td> <td>**</td> <td></td> | | | | н | 11 | н | ** | ** | ** | |
| 2,6-Dinitrotoluene ND 30000 " <td></td> <td></td> <td></td> <td>n</td> <td>ŧ</td> <td>n</td> <td>"</td> <td>*</td> <td>*</td> <td></td> | | | | n | ŧ | n | " | * | * | |
| Di-n-octyl phthalate ND 30000 " <td>•</td> <td></td> <td></td> <td>n</td> <td>ıı.</td> <td>н</td> <td>н</td> <td>*</td> <td>n</td> <td></td> | • | | | n | ıı. | н | н | * | n | |
| Fluoranthene ND 30000 " " " " " " " " " " " " " " " " " | | | | " | н | # | H | н | ** | |
| Fluorene ND 30000 " " " " " | | | | | 11 | " | н | ** | • | |
| | | | | | 11 | ,, | н | ** | н | |
| Haveablarchangens ND (0000 " " " | Hexachlorobenzene | ND ND | 30000 | ,, | 11 | н | н | Ħ | | |

Great Lakes Analytical

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Andy Johnson, Project Manager

Page 28 of 32



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Reporting | | | | | | | | | | | |
|--------------------------------|-------------------------|----------|----------|------------|---------|---------------------------------------|----------|-----------|------|--|--|
| Analyte | Result | Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note | | |
| D-12 (B201120-06) Waste (L) | Sampled: 01/09/02 15:50 | Received | 01/10/02 | 10:00 | | · · · · · · · · · · · · · · · · · · · | | | 0 | | |
| Hexachlorobutadiene | ND | 30000 | ug/kg | l | 2010168 | 01/11/02 | 01/12/02 | EPA 8270C | | | |
| Hexachlorocyclopentadiene | ND | 30000 | ** | " | " | • | ** | " | | | |
| Hexachloroethane | ND | 30000 | " | " | " | Ħ | ** | ** | | | |
| Indeno (1,2,3-cd) pyrene | ND | 30000 | * | ** | | ** | n | n | | | |
| Isophorone | ND | 30000 | ** | ** | | н | * | n | | | |
| 2-Methylnaphthalene | ND | 30000 | * | •• | •• | • | • | u | | | |
| o-Cresol | ND | 30000 | ** | ** | " | | • | u | | | |
| m,p-Cresols | ND | 30000 | * | ** | " | " | ** | n | | | |
| phthalene | ND | - 30000 | * | ** | " | * | ** | н | | | |
| Z-Nitroaniline | ND | 150000 | ** | n | н | ** | " | H | | | |
| 3-Nitroaniline | ND | 150000 | • | •• | ** | " | ** | н | | | |
| 4-Nitroaniline | ND | 150000 | " | " | * | н | ** | ** | | | |
| Nitrobenzene | ND | 30000 | ** | " . | ** | н | 11 | H | | | |
| 2-Nitrophenol | ND | 30000 | | " | ,, | u | | * | | | |
| 4-Nitrophenol | ND | 150000 | 11 | 11 | ** | ** | | | | | |
| N-Nitrosodi-n-propylamine | ND | 30000 | * | ** | ** | н | ** | | | | |
| N-Nitrosodiphenylamine | ND | 30000 | H | н | ** | 94 | ** | * | | | |
| Pentachlorophenol | ND | 150000 | II | n | 11 | ** | 11 | ** | | | |
| Phenanthrene | ND | 30000 | н | Ħ | н | ** | н | ,, | | | |
| Phenol | ND | 30000 | н | н | 11 | • | н | ** | | | |
| Pyrene | ND | 30000 | н | n | н | ** | ** | " | | | |
| 1,2,4-Trichlorobenzene | ND | 30000 | н | ** | н | ** | ** | ** | | | |
| 2,4,5-Trichlorophenol | ND | 150000 | н | ** | н | | н | * | | | |
| 2,4,6-Trichlorophenol | ND | 30000 | н | | ** | • | н | • | | | |
| Surrogate: 2-Fluorophenol | | 71.3% | 50- | 130 | | " | " | " | | | |
| rrogate: Phenol-d6 | | 73.7 % | 50- | | ,, | " | ** | " | | | |
| rrogate: Nitrobenzene-d5 | | 75.7% | | 130 | ,, | " | ,, | * | | | |
| Surrogate: 2-Fluorobiphenyl | | 81.8% | | 130 130 | ,, | ,, | " | " | | | |
| Surrogate: 2,4,6-Tribromophene | ol. | 117% | | 130 | ,, | ,, | " | * | | | |
| Surrogate: p-Terphenyl-d14 | vi | 126 % | 50- | | " | " | " | " | | | |

Great Lakes Analytical

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

... =.

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A

Reported:

Chicago IL, 60601

Project Manager: Lisa Graczyk

01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| | Reporting | | | | | | | | | | | |
|---|-----------------------------|-------------------------|-----------------|------------|----------|---------|----------|----------|-----------|----------|--|--|
| | Analyte | Result | Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes | | |
| | D-15 (B201120-07) Waste (L) | Sampled: 01/09/02 16:05 | Received | : 01/10/02 | 10:00 | | -· | | | O2 | | |
| | Acenaphthene | ND | 30000 | ug/kg | I | 2010168 | 01/11/02 | 01/12/02 | EPA 8270C | | | |
| | Acenaphthylene | ND | 30000 | ,, | ** | * | " | " | " | | | |
| | Aniline | ND | 30000 | | * | " | 11 | " | " | | | |
| | Anthracene | ND | 30000 | •• | ** | ** | 11 | " | • | | | |
| | Benzoic acid | ND | 150000 | ** | ** | " | " | ** | " | | | |
| | Benz (a) anthracene | ND | 30000 | *1 | " | ** | " | ** | | | | |
| | Benzo (a) pyrene | ND | 30000 | " | ** | ** | " | " | * | | | |
| | Benzo (b) fluoranthene | ND | 30000 | 11 | ** | " | II . | ** | * | | | |
| | Benzo (ghi) perylene | ND | 30000 | n | ** | u | n | н | ** | | | |
| | Benzo (k) fluoranthene | ND | 30000 | 11 | ** | " | n | n | • | _ | | |
| | Benzyl alcohol | ND | 30000 | 19 | н | 11 | n | 11 | " | | | |
| | Bis(2-chloroethoxy)methane | ND | 30000 | | н | n | n | ** | " | | | |
| | Bis(2-chloroethyl)ether | ND | 30000 | ** | ** | " | u | ** | ** | | | |
| | Bis(2-chloroisopropyl)ether | ND | 30000 | ** | " | n | u | ** | ** | | | |
| | Bis(2-ethylhexyl)phthalate | ND | 99000 | | н | " | " | " | * | | | |
| | 4-Bromophenyl phenyl ether | ND | 30000 | | п | | 11 | •• | • | | | |
| | Butyl benzyl phthalate | ND | 30000 | p | n | n | n | ** | ** | | | |
| | 4-Chloroaniline | ND | 30000 | Ħ | | 11 | " | ** | | | | |
| | 4-Chloro-3-methylphenol | ND | 30000 | u | | ** | " | ** | ** | | | |
| | 2-Chloronaphthalene | ND | 30000 | н | 11 | " | ** | ** | ** | | | |
| , | 2-Chlorophenol | ND | 30000 | н | ** | " | ** | ** | • | | | |
| | 4-Chlorophenyl phenyl ether | ND | 30000 | 11 | ** | ** | " | •• | " | | | |
| | Chrysene | ND | 30000 | ** | ** | ** | " | ** | " | | | |
| 1 | Dibenz (a,h) anthracene | ND | 30000 | ** | •• | ** | " | ** | ** | | | |
| • | Dibenzofuran | ND | 30000 | | ** | ** | ** | ** | " | | | |
| ł | 1,2-Dichlorobenzene | ND | 30000 | | н | | ** | • | " | | | |
| | 1,3-Dichlorobenzene | ND | 30000 | ** | ** | | ** | • | " | <u> </u> | | |
| 3 | 1,4-Dichlorobenzene | ND | 30000 | ** | ,, | ** | | ** | | | | |
| | 3,3'-Dichlorobenzidine | ND | 150000 | | • | " | ** | н | | | | |
| | 2,4-Dichlorophenol | ND ND | 30000 | ** | ** | | • | н | • | | | |
| | Diethyl phthalate | ND | 30000 | ** | • | • | " | н | ** | | | |
| i | 2,4-Dimethylphenol | ND ND | 30000 | ** | н | ** | | | n | | | |
| | | ND ND | 30000 | ** | ** | 11 | ,, | ** | H | | | |
| | Dimethyl phthalate | ND ND | 99000 | ** | ,, | ** | n | ** | n | | | |
| ì | Di-n-butyl phthalate | ND ND | 150000 | н | ** | ** | " | • | 19 | | | |
| • | 4,6-Dinitro-2-methylphenol | | | ** | н | ** | | ** | 17 | | | |
| , | 2,4-Dinitrophenol | ND ND | 150000 30000 | н | | ** | ** | ** | * | | | |
| | 2,4-Dinitrotoluene | | | 11 | 11 | " | ŧı | * | ** | | | |
| | 2,6-Dinitrotoluene | ND | 30000 | ** | ,, | | н | | " | | | |
| | Di-n-octyl phthalate | ND | 30000 | ** | | ,, | 11 | ** | ** | | | |
| | Fluoranthene | ND | 30000 | | ., | | | ** | ** | | | |
| | Fluorene | ND | 30000 | | ,, | | | ** | " | | | |
| • | Hexachlorobenzene | ND | 30000 | * | " | | • | | | | | |

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Andy Johnson, Project Manager

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-------------------------------|-------------------------|--------------------|------------|----------|---------|-------------|----------|-----------|-------|
| D-15 (B201120-07) Waste (L) | Sampled: 01/09/02 16:05 | Received | : 01/10/02 | 2 10:00 | | | | | O |
| Hexachlorobutadiene | ND | 30000 | ug/kg | 1 | 2010168 | 01/11/02 | 01/12/02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 30000 | ** | " | " | H | ** | " | |
| Hexachloroethane | ND | 30000 | * | н | ** | н | ** | " | |
| Indeno (1,2,3-cd) pyrene | ND | 30000 | н | ** | " | ** | " | * | |
| Isophorone | ND | 30000 | • | ** | ** | ** | | ** | |
| 2-Methylnaphthalene | ND | 30000 | • | " | " | ** | • | • | |
| o-Cresol | ND | 30000 | ** | *** | н | ** | н | и | |
| m,p-Cresols | ND | 30000 | ** | н | ** | * | ** | n | |
| ohthalene | ND | . 30000 | #1 | * | ** | * | ** | • | |
| z-Nitroaniline | ND | 150000 | ** | ** | ** | ** | ** | " | |
| 3-Nitroaniline | ND | 150000 | " | н | * | ** | * | n | |
| 4-Nitroaniline | ND | 150000 | ** | н | | n | •• | ** | |
| Nitrobenzene | ND | 30000 | " | ** | ** | " | ** | " | |
| 2-Nitrophenol | ND | 30000 | 11 | ** | • | ** | •• | II . | |
| 4-Nitrophenol | ND | 150000 | 11 | 11 | " | ** | * | н | |
| N-Nitrosodi-n-propylamine | ND | 30000 | н | ** | •• | ** | ** | н | |
| N-Nitrosodiphenylamine | ND | 30000 | * | ** | • | • | = | н | |
| Pentachlorophenol | ND | 150000 | ** | н | ** | н | * | " | |
| Phenanthrene | ND | 30000 | " | " | ** | ıı | ** | " | |
| Phenol | ND | 30000 | * | н | 11 | ** | " | ** | |
| Pyrene | ND | 30000 | 17 | ** | n | " | " | | |
| 1,2,4-Trichlorobenzene | ND | 30000 | | | н | ** | н | ,, | |
| 2,4,5-Trichlorophenol | ND | 150000 | • | ** | н | • | н | • | |
| 2,4,6-Trichlorophenol | ND | 30000 | | ** | н | | н | * | |
| Surrogate: 2-Fluorophenol | | 74.1% | 50- | 130 | | " | " | | |
| "rrogate: Phenol-d6 | | 77.9 % | | 130 | " | " | " | " | |
| rrogate: Nitrobenzene-d5 | | 77.0 % | | 130 | " | " | " | " | |
| Surrogate: 2-Fluorobiphenyl | | 89.5 % | 50- | 130 | n | " | H | " | |
| Surrogate: 2,4,6-Tribromophen | ol | 96.2 % | | 130 | " | " | H | " | |
| Surrogate: p-Terphenyl-d14 | | 157% | 50- | 130 | " | " | ., | " | 0 |

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Tetra Tech EMI - IL

E

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A

Reported:

Chicago 1L, 60601

Project Manager: Lisa Graczyk

01/18/02 10:23

Notes and Definitions

>220 >220 °F

O2 One or more internal standard recoveries were below the method specified acceptance criteria.

O4 The recovery for this analyte is below the laboratory's established acceptance criteria.

O5 The recovery for this analyte is above the laboratory's established acceptance criteria.

QC The result for one or more quality control measurements associated with this sample did not meet the laboratory and/or source

method acceptance criteria.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

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Andy Johnson, Project Manager

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Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01/18/02 10:23

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical

| Great Lakes Analytical | | | | | | | | | | | | |
|--------------------------------|-------------------------|--------------------|------------|----------|---------|----------|----------|----------|-------|--|--|--|
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes | | | |
| D-1 (B201120-01) Waste (L) | Sampled: 01/08/02 17:00 | Received: | 01/10/02 | 10:00 | | | | | | | | |
| PCB-1016 | ND | 3.50 | mg kg | 1 | 2010162 | 01-11-02 | 01 14 02 | EPA 8082 | | | | |
| PCB-1221 | ND | 3.50 | | n | •• | | ** | " | | | | |
| PCB-1232 | ND | 3.50 | " | | " | " | " | u | | | | |
| PCB-1242 | ND | 3.50 | ** | | • | *1 | ** | n | | | | |
| PCB-1248 | ND | 3.50 | 11 | " | •• | n | ** | •• | | | | |
| PCB-1254 | ND | 3.50 | | 11 | ** | ** | ** | ** | | | | |
| PCB-1260 | ND | 3.50 | | ** | ** | ** | 11 | | | | | |
| Surrogate: Tetrachloro-meta-xy | lene | 71.7 % | 10- | 173 | " | " | " | " | | | | |
| rrogate: Decachlorobipheny | | 17.1 % | 10- | 192 | " | " | " | " | | | | |
| D-2 (B201120-02) Waste (L) | Sampled: 01/08/02 17:15 | Received: | 01/10/02 | 10:00 | | | | | | | | |
| PCB-1016 | ND | 3.50 | mg/kg | 1 | 2010162 | 01 11 02 | 01/14/02 | EPA 8082 | | | | |
| PCB-1221 | ND | 3.50 | " | n | " | n | " | ,, | | | | |
| PCB-1232 | ND | 3.50 | | " | " | n | | " | | | | |
| PCB-1242 | ND | 3.50 | ** | ** | ** | n | " | " | | | | |
| PCB-1248 | ND | 3.50 | " | | ** | H | " | | | | | |
| PCB-1254 | ND | 3.50 | ** | • | n | ** | n | •• | | | | |
| PCB-1260 | ND | 3.50 | " | ** | ** | ** | n | •• | | | | |
| Surrogate: Tetrachloro-meta-x | vlene | 69.3 % | 10- | 173 | " | | ,, | " | | | | |
| Surrogate: Decachlorobipheny | | 13.8 % | | 192 | " | " | ,, | v | | | | |
| D-9B (B201120-03) Waste (L) | Sampled: 01/09/02 14:4: | 5 Received | l: 01/10/0 | 2 10:00 | | | | | | | | |
| PCB-1016 | ND | 3.50 | mg/kg | 1 | 2010162 | 01/11/02 | 01 14 02 | EPA 8082 | | | | |
| PCB-1221 | ND | 3.50 | " | | ** | | " | ** | | | | |
| PCB-1232 | ND | 3.50 | | ** | " | • | " | ** | | | | |
| ∩B-1242 | ND | 3.50 | ** | ,, | ** | ** | n | ** | | | | |
| ∠B-1248 | ND | 3.50 | ** | " | " | " | ** | ** | | | | |
| PCB-1254 | ND | 3.50 | •• | •• | u | " | ** | н | | | | |
| PCB-1260 | ND | 3.50 | ** | ** | n n | n | ű | " | | | | |
| Surrogate: Tetrachloro-meta-xy | vlene | 70.8 % | 10- | -173 | ,, | " | " | ,, | | | | |
| Surrogate: Decachlorobipheny | | 14.6 % | 10- | -192 | " | " | " | ** | | | | |

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 01-18/02-10:23

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical

| | | Ortal L | | marytica | | | | | |
|----------------------------------|-------------------------|--------------------|-----------|----------|---------|----------|----------|----------|-------|
| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
| T-4 (B201120-04) Waste (L) | Sampled: 01/09/02 15:40 | Received: | 01/10/02 | 10:00 | | | | | |
| PCB-1016 | ND | 3.50 | mg/kg | ì | 2010162 | 01/11/02 | 01 14 02 | EPA 8082 | |
| PCB-1221 | ND | 3.50 | H | " | n | | ** | •• | |
| PCB-1232 | ND | 3.50 | ** | ** | 11 | n | ** | u | |
| PCB-1242 | ND | 3.50 | ** | | ** | ** | | 11 | |
| PCB-1248 | ND | 3.50 | " | " | n | u | 11 | II . | |
| PCB-1254 | ND | 3.50 | ** | n | n | •• | ** | n | |
| PCB-1260 | ND | 3.50 | ** | ** | н | ** | ** | n | |
| Surrogate: Tetrachloro-meta-xylo | ene | 71.5 % | 10- | 173 | " | | " | " | |
| Surrogate: Decachlorobiphenyl | | 40.0 % | 10- | 192 | n | " | n | " | _ |
| D-13 (B201120-05) Waste (L) | Sampled: 01/09/02 15:45 | Received | : 01/10/0 | 2 10:00 | | | | | |
| PCB-1016 | ND | 3.50 | mg/kg | 1 | 2010162 | 01 11 02 | 01/14/02 | EPA 8082 | |
| PCB-1221 | ND | 3.50 | " | ** | " | 11 | " | n . | |
| PCB-1232 | ND | 3.50 | н | | | ** | u | н | |
| PCB-1242 | ND | 3.50 | ** | n | 11 | ** | " | tt. | |
| PCB-1248 | ND | 3.50 | ** | u | н | н | ** | н | |
| PCB-1254 | ND | 3.50 | ** | | ** | H | ** | ** | |
| PCB-1260 | ND | 3.50 | | ** | ** | n | ** | •• | |
| Surrogate: Tetrachloro-meta-xvl | ene | 74.4 % | 10- | 173 | ,, | " | | u | |
| Surrogate: Decachlorobiphenyl | | 14.4 % | | 192 | ,, | " | ** | " | |
| D-12 (B201120-06) Waste (L) | Sampled: 01/09/02 15:50 | Received | : 01/10/0 | 2 10:00 | | | | | |
| PCB-1016 | ND | 3.50 | mg/kg | 1 | 2010162 | 01 11 02 | 01 14 02 | EPA 8082 | |
| PCB-1221 | ND | 3.50 | " | n | ** | ** | " | ** | |
| PCB-1232 | ND | 3.50 | 11 | n | ** | 11 | +1 | ** | |
| PCB-1242 | ND | 3.50 | ** | " | ** | 3) | ** | ** | |
| PCB-1248 | ND | 3.50 | n | | u | ** | ** | ** | |
| PCB-1254 | ND | 3.50 | " | ,, | ** | Ħ | " | " | |
| PCB-1260 | ND | 3.50 | ,, | | ** | " | ,, | • | |
| Surrogate: Tetrachloro-meta-xyl | ene | 45.2 % | 10- | 173 | " | " | ,, | " | |
| Surrogate: Decachlorobiphenyl | | 33.3 % | 10- | 192 | ,, | " | n | " | |

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Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N·A
Project Manager: Lisa Graczyk

Reported: 01·18·02·10:23

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---------------------------------|-------------------------|--------------------|-----------|----------|---------|----------|----------|----------|-------|
| D-15 (B201120-07) Waste (L) | Sampled: 01/09/02 16:05 | Received | : 01/10/0 | 2 10:00 | | | | | |
| PCB-1016 | ND | 3.50 | mg/kg | 1 | 2010162 | 01.11.02 | 01:14:02 | EPA 8082 | |
| PCB-1221 | ND | 3.50 | " | н | ** | ** | " | 11 | |
| PCB-1232 | ND | 3.50 | *1 | " | 11 | | H | *** | |
| PCB-1242 | ND | 3.50 | " | 11 | ** | " | ** | ** | |
| PCB-1248 | ND | 3.50 | • | n | | * | ** | * | |
| PCB-1254 | ND | 3.50 | ** | n | ,, | ** | ** | n | |
| PCB-1260 | ND | 3.50 | n | D | ** | 11 | ** | | |
| Surrogate: Tetrachloro-meta-xyl | lene | 70.3 % | 10- | 173 | " | " | " | " | |
| urrogate: Decachlorobiphenyl | | 11.7 % | 10- | 192 | " | " | " | " | |

Great Lakes Analytical

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Andy Johnson, Project Manager

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Tetra Tech EM Inc.



200 E. Randolph Drive, Suite 4700 ◆ Chicago, IL 60601 ◆ (312) 856-8700 ◆ FAX (312) 938-0118

MEMORANDUM

Date:

09 Apr 02

To:

Brad White, Project Manager, Tetra Tech EM Inc. (Tetra Tech)

Superfund Technical Assessment and Response Team (START) for Region 5

From:

Nancy McDonald, Chemist, Tetra Tech START for Region 5

Subject:

Data Validation for

Gary Development Landfill Site

Gary, Indiana

Analytical Technical Direction Document (TDD) No. S05-0201-006

Project TDD No. S05-0201-005

Laboratory: Severn Trent Laboratories (STL), University Park, Illinois

Work Order No. 208299

Total Metals, Volatile Organic Compound (VOC), Semivolatile Organic Compound (SVOC),

Reactive Cyanide, Reactive Sulfide, and pH Analyses of Waste Sample D3-21 Comp; Polychlorinated Biphenyl (PCB) and Flash Point Analyses of Waste Samples D3-21 Comp and D28; and British Thermal Unit (BTU) and Total Organic Halide (TOX) Analysis of

Waste Sample D28

1.0 INTRODUCTION

The Tetra Tech START for Region 5 validated total metals, VOC, SVOC, reactive cyanide, reactive sulfide, pH, PCB, flash point, BTU, and TOC analytical data for two waste samples collected on 19 Feb 02 from the Gary Development Landfill site in Gary, Indiana. The samples were analyzed under the above-referenced work order by STL using U.S. Environmental Protection Agency (U.S. EPA) SW-846 Methods 6010B and 7470A for total metals analysis, 8260B for VOC analysis, 8270C for SVOC analysis, 7.3.3.2 and 9014 for reactive cyanide analysis, 7.3.4.2 and 9034 for reactive sulfide analysis, 8082 for PCB analysis, 1010 for flash point analysis, and 9076 for TOX analysis. STL also used U.S. EPA Chemical Analysis of Water and Wastes Method 150.1 for pH analysis and American Society for Testing and Materials (ASTM) Method D240 for BTU analysis.

The data were validated in general accordance with U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Organic Data Review" dated Oct 99 and "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated Feb 94. Organic data validation consisted of a review of the following quality control (QC) parameters: holding times, instrument performance checks, initial and continuing calibrations, blank results, surrogate results, matrix spike and matrix spike duplicate (MS/MSD) results, laboratory control sample and laboratory control sample duplicate (LCS/LCSD) results, internal standard (IS) area counts, and target compound identification. Inorganic data validation consisted of a review of the following QC parameters: holding times, initial and continuing calibrations, blank results, LCS results, interference check sample (ICS) results, and MS/MSD results.

Section 2.0 discusses the results of the organic data validation, Section 3.0 discusses the results of the inorganic data validation, and Section 4.0 presents an overall assessment of the data. The attachment to this memorandum contains STL's summary of analytical results as well as START's handwritten data qualifications where warranted.

2.0 ORGANIC DATA VALIDATION RESULTS

The results of START's organic data validation are summarized below in terms of the QC parameters reviewed. The data qualifiers below were applied to the sample analytical results where warranted (see the attachment).

- J The compound was detected. The reported numerical value is considered to be estimated for QC reasons.
- R The sample result was rejected for QC reasons, and the presence or absence of the analyte cannot be verified.

2.1 HOLDING TIMES

The samples were analyzed within the holding time limits of (1) 14 days to extraction and 40 days from extraction to analysis for SVOCs and PCBs and (2) 14 days to analysis for VOCs.

2.2 INSTRUMENT PERFORMANCE CHECKS

The decafluorotriphenylphosphine and bromofluorobenzene instrument performance checks met the QC abundance criteria for the SVOC and VOC analyses, respectively. The chromatographic resolution was adequate for the PCB analysis.

2.3 INITIAL AND CONTINUING CALIBRATIONS

For the VOC and SVOC analyses, the relative standard deviation (RSD) from the initial calibration result was less than or equal to the QC limit of 30 percent for the target compounds detected. However, relative response factors for acetone, 2-butanone, 4-methyl-2-pentanone, and 2-hexanone in the VOC initial and/or continuing calibration were less than the QC limit of 0.050. Therefore, nondetected results for 2-butanone, 4-methyl-2-pentanone, and 2-hexanone in Sample D3-21 Comp were flagged "R" as rejected. The detected result for acetone in Sample D3-21 Comp was flagged "J" as estimated. The continuing calibration results were less than or equal to the QC limit of 25 percent difference (%D) between the initial calibration relative response factor and the continuing calibration relative response factor for the target compounds detected with the following exception. The %D for benzoic acid exceeded the QC limit of 25 percent. Therefore, the detected benzoic acid result in sample D3-21 Comp was flagged "J" as estimated.

For the PCB analysis, the initial calibration result was within the QC limit of less than or equal to

20 percent RSD for the average of the five calibration factors (CF) for a single Aroclor. The continuing calibration standards were within the QC limit of less than or equal to 15 %D between the mean CF for the initial calibration curve and the CF for the continuing calibration.

2.4 BLANK RESULTS

A method blank was run with the analytical batch in the proper sequence. No target compounds were detected in the blank for the VOC, SVOC, or PCB analysis.

2.5 SURROGATE RESULTS

For the VOC analysis, all surrogate recoveries were within the laboratory-established QC limits. For the SVOC analysis, the recovery for base/neutral surrogate nitrobenzene-d5 in Sample D3-21 Comp was outside the laboratory-established QC limit. However, no qualifications were required because only one base/neutral surrogate result was outside QC limit. Surrogate recoveries were within the QC limits specified by the laboratory for the PCB analysis.

2.6 MS/MSD RESULTS

MSs and MSDs were not analyzed during the organic analyses. No qualifications were applied for this data gap.

2.7 LCS/LCSD RESULTS

For the VOC analysis, the LCS recovery for dichlorodifluoromethane was biased high and outside the QC limits specified by the laboratory. Because this compound was not detected in Sample D3-21 Comp, no qualifications were warranted.

For the SVOC analysis, LCS/LCSD recoveries for benzidine were biased high and outside the QC limits specified by the laboratory. Because this compound was not detected in the Sample D3-21 Comp, no qualifications were warranted. The relative percent difference (RPD) for benzoic acid also exceeded the QC limit specified by the laboratory. Therefore, the benzoic acid result in sample D3-21 Comp was flagged "J" as estimated.

For the PCB analysis, LCS/LCSD recoveries were within the QC limits specified by the laboratory.

2.8 IS AREA COUNTS

For the VOC and SVOC analyses, the IS area counts were within the QC limits of -50 to +100 percent of those for the calibration standard. The retention times for the ISs were within the QC limit of \pm 30 seconds. IS area counts do not apply to the PCB analysis.

2.9 TARGET COMPOUND IDENTIFICATION

A spot-check of the chromatograms for the VOC, SVOC, and PCB analyses confirmed the target compound identifications for the sample.

3.0 INORGANIC DATA VALIDATION RESULTS

The results of START's inorganic data validation are summarized below in terms of the QC parameters reviewed. The data qualifier below was applied to the sample analytical results where warranted (see the attachment).

• J - The analyte was detected. The reported numerical value is considered to be estimated for QC reasons.

3.1 HOLDING TIMES

The samples were analyzed within the holding time limits of (1) 28 days for mercury and (2) 6 months for other metals. The pH analytical method (EPA Method 150.1) states that samples should be analyzed "as soon as possible." The sample was analyzed for pH on the day of receipt by the laboratory, meeting the holding time requirement.

3.2 INITIAL AND CONTINUING CALIBRATIONS

During the initial and continuing calibrations, recoveries were within the QC limits of 80 to 120 percent for mercury and 90 to 110 percent for other metals, BTU, reactive cyanide, reactive sulfide, and TOX.

For the pH analysis, the pH meter was checked using a standard buffer solution with a pH of 7.00 before and after the analysis. The pH meter generated readings of 6.90 and 6.93; therefore, the instrument appears to have been working properly. Aside from the holding time requirement (see Section 3.1), this check is the only QC parameter that applies to pH analysis.

3.3 BLANK RESULTS

Appropriate blanks, such as initial calibration blanks, continuing calibration blanks, and method blanks, were run with each analytical batch. No target analytes were detected in the blanks at concentrations above the instrument detection limits with the following exception. Calcium was detected in the method blank at a concentration above the reporting limit. No qualifications were warranted because the sample result was greater than five times the blank concentration.

3.4 LCS RESULTS

An LCS was analyzed with each analytical batch. The recoveries were within the laboratory-established QC limits for each target analyte. For the TOX analysis, the RPD exceeded the laboratory-established QC limit of 20 percent. Therefore, the TOX result for Sample D28 was flagged "J" as estimated.

For the flash point analysis, the laboratory instrument was checked using a p-xylene standard, and it generated measurements of 81.7 and 80.7°F for flash point. The flash point of p-xylene is approximately 81 °F; therefore, the instrument appears to have been working properly. This check is the only QC parameter that applies to flash point analysis.

3.5 ICS RESULTS

The ICS results were within the QC limit of 80 to 120 percent recovery.

3.6 MS/MSD RESULTS

MSs and MSDs were analyzed with the samples. All percent recoveries were within the QC limits established by the laboratory with the following exception. The percent recovery for sodium for the MSD was biased low and outside the QC limit; therefore, the sodium result for Sample D3-21 Comp was flagged "J" as estimated.

4.0 OVERALL ASSESSMENT OF DATA

Overall, the sample analytical data generated by STL are acceptable for use as qualified.

ATTACHMENT

STL SUMMARY OF ANALYTICAL RESULTS

(Eight Sheets)

Date: 03/01/2002

CUSTOMER: Tetra Tech EM Inc.

PROJECT: START - CRAVY DEVELO

ATTN: Anne Troup

Customer Sample 1D: D3-21 Crmp Date Sampled....: 02/19/2002 Time Sampled....: 10:15 Sample Matrix ...: Water

Job Number: 208299

Laboratory Simple ID: 208299-1 Date Received.....: 02/21/2002 Time Received.....: 08:00

| TEST METHOD | PARAMETER/TEST DESCRIPTION | SAMPLE RESULT | Q FLAGS | MOL | RL | DILUTION | UNITS | BATCH | DT | DATE/TIME | E TEX |
|----------------|------------------------------|---------------|---------|----------|---------|----------|-----------|-------|-----|-------------|----------|
| 8082 | PCB Analysis | | | | | | | | | · | |
| | Arcelor 1016 | 0.40 | เป | 0.24 | 0.40 | 1.00000 | ug/L | 45999 | 1 ! | 02/27/02 19 | 344 mg |
| | Aroclor 1221 | 0.40 | U | 0.31 | 0.40 | 1.00000 | ug/L | 45999 | !! | 02/27/02 19 | 144 mg |
| | Arocior 1232 | 0.40 | ט | 0.19 | 0.40 | 1.00000 | ug/L | 45999 | } } | 02/27/02 19 | 944 mgi |
| | Accolor 1242 | 0.40 | U | 0.31 | 0.40 | 1.00000 | ug/I. | 45999 | 1 1 | 02/27/02 19 | /44 mg/ |
| | Aroclor 1248 | 0.40 | \U \ | 0.32 | 0.40 | 1.00000 | ug/L | 45999 | 1 1 | 02/27/02 19 |)44 my |
| | Aroclor 1254 | 0.40 | ן ט | 0.24 | 0.40 | 1.00000 | ug/L | 45999 | 1 1 | 02/27/02 19 | 44 m/p |
| | Aroclor 1260 | 0.40 | U | 0.098 | 0.40 | 1.00000 | ug/L | 45999 | | 02/27/02 19 | 144 mgi |
| 3.3.2/9014 | Reactivity, Cyanide | İ | | • | | Ì | | j | 1 1 | | ļ |
| | Reactivity, Cyanide | 0.01 | | 9.01 | 0.01 | 1 | mg/L | 45890 | 1 | 02/26/02 16 | .42 mps |
| 3.4.2/9034 | Reactivity, Sulfide | ļ | | | | į | | İ | İ | | į |
| | Reactivity, Sulfide | 1 7 | ט | 1.7 | 1.7 | 1 | mg/I. | 45870 | | 02/25/02 16 | 40 nm |
| 150.1 | pH (Water) | | | į | | | | ļ | | | į |
| | pH | 6.53 | | 0.20 | 0.20 | 1 | pH Units | 45626 | | 02/21/02 17 | 104 CV |
| 1010 | | Ì | | į | | | | ļ |) j | | Ì |
| | Ignitability (Flashpoint) | 90 | | | | 1 | degrees F | 45878 | 1 | 02/26/02 12 | :23 jm |
| 7470A | Mercury (CVIVI) | j | | İ | | | | ļ | | | İ |
| | Mercury | 0.00020 | U | 0.000065 | 0.00020 | 1 | my/L | 45959 | | 02/26/02 14 | .35 graf |
| 601 0 B | Metals Analysis (ICAP Trace) | į | | | | | | • | | | į |
| | Aluminum | 0.09/1 | B | 0.0185 | 0.200 | 1 | mr4/1. | 45955 | ! ! | 02/25/02 22 | :22 1m |
| | Ant. imony | 0.0200 | lu! ! | 0.0111 | 0.0200 | 1 | mu/L | 45955 | 1 1 | 02/25/02 32 | 222 im |
| | Arsenic | 0.0100 | [0] | 0.0053 | 0.0100 | 1 | mg/L | 45955 | | 02/25/02 22 | |
| | Barium | 0.0299 | i 1 (| 0.0028 | 0.0100 | ι, Ι | mg/L | 45955 | | 02/25/02 22 | |

^{*} In Description - Dry Wgt...

Job Number: 208299 LABORATORY TEST RESULTS

Date: 03/01/2002

CUSTUMER: Tetra Tech EM Inc.

PROJECT: START - CRAVY DEVELO

ATTN: Arme Troub

Customer Sample ID: D3:21 Comp Date Sampled....: 02/19/2002 Time Sampled....: 10:15 Sample Matrix...: Water

Laboratory Sample ID: 208299-1 Date Received.....: 02/21/2002

Time Received: 08:00

| TEST METHOD | PARAMSTER/TEST DESCRIPTION | SAMPLE RESULT | Q | FLAGS | MDL | RJ, | [D111100000] | | T | - 1 | r | |
|-------------|--|---------------|-----|------------------|----------|--------|------------------|--------|--------------|----------------|--------------------------|---------------|
| | Beryllium | | - | ├ — - | | | DIWITON | UNITS | BYLCH | DT | DATE/TH | 4 E 77 |
| | Cadmium | 0.0040 | U | 'i ; | 0.00029 | 0.0040 | 1 | | + | - | | |
| | Calcium | 0.0020 | U | | 0.00032 | 0.0020 | 1; | mg/J. | 45955 | 1 | 02/25/02 | 222 L |
| | Chromium | 32.1 | i i | 74 | 0.0222 | 0.100 | !; | mg/L | 45955 | i i | 02/25/02 | 222 ln |
| | Cohalt | 0.440 | 11 | i i | 0.0030 | 0.0100 | 15 i | mg/1, | 45899 | i i | 02/26/02 | 523 ln |
| | Copper | 0.0063 | 11 | } | 0.0020 | 0.0050 | 片 1 | mg/L | 45955 | ii | 02/25/02 2 | 222 lim |
| | Iron | 0.0222 | 11 | 1 | 0.0028 | 0.0100 | 15 1 | mg/L | 45955 | i i | 02/25/02 2 | 222 ! հա |
| | Lead | 2.22 | 11 | | 0.0437 | 0.0500 | l; i | mg/L | 45955 | i i | 02/25/02 2 | 222! Ini |
| | Magnesium | 0.0065 | 1 1 | | 0.0047 | 0.0050 | 1; [| mg/L | 45955 | i I | 02/25/02 2 | 222 ! Im |
| | Manganese | 6.48 | 11 | 1 | 0.0096 | 0.100 | li i | mg/L | 45899 | 1 1 | 02/26/02 1 | 523 1m |
| | Nickel | 0.276 | 11 | 1 | 0.0016 | 0.0100 | 1: 1 | mg/L | 45955 | $i = i^{*}$ | 02/25/02 2 | 222!1m |
| | Potassium | 0.277 | 11 | 1 | 0.0026 | 0.0100 | j | mg/L | 45955 | !!! | 02/25/02 2 | 222 100 |
| | Selcnium | 3.54 | 11 | 1 | 0.0292 | 0.500 | i . 1 | mg/I. | 45955 | | 02/25/02 2 | 22 1m |
| | Silver | 0.0100 | U | 1 | 0.0049 | 0.0100 | l . | mg/I, | 45955 | (| 02/25/02 2 | 22 1 |
| 1 | Sodium | 0.0021 | В | / | 0.0013 | 0.0050 | i . | mg/I | 45955 | | 02/25/02 22 | 22 1 |
| ! | Thallium | 18.5 | 11 | 3 | 0.469 | 1.00 | 1 | mg/L | 45955 | l | 2/25/02 22 | 22 1 |
| | Vanadium | 0.0100 | U | | 0.0074 | 0.0100 | 1 1 | mg/L | 45955 | !0 | 2/25/02 22 | 22 1 |
| 1 | Zinc | 0 0050 | U | } | 0.0023 | 0.0050 | <u>.</u> | mg/L | 45899 | lo | 2/26/02 15 | 23 100 |
| Ţ | | 0.582 | | ! | 0.0027 | | 1 | | 45955 | la | 2/25/02 22 | 23 1111 |
| 270C | Semivolatile Organics | i | ! ! | ! | 1.552 | 0.0200 | 1 | mg/L | 45955 | - 10 | 2/25/02 22 | 22 1111 |
| 1: | Phenoi | i | !! | | 1 | i | i | | | - [- | / 2 3 / 02 2 / | 28 1 1 int |
| | Bis(2-chloroethyl)ether | 130 | u! | ! | 50 | 110 | | | '! | Ţ | | i |
| | 1.3 Dichlorobenzene | 130 | o! | ! | 63 | | 10.00000 | ug/L | 46012 | 0 | 2/26/02 18 | المدأء |
| [] | 1,4 Dichlorobenzene | 130 | U | | 75 | | 10.00000 | ug/L | 46012 | !0: | 2/26/02 18 | o rapik |
| <u> </u> | 1,2-Dichlorobenzene | 130 | U! | ! | 76 | | 10.00000 | ug/L | 46012 | 0 | 2/26/02 18 | o capto |
| | enzyl alcohol | 130 | ט | | 71 | | 10.00000 | ານໆ/ī. | 46012 | 0. | 2/26/02 18: | e ukok |
| 2 | Methylphenol (o cresol) | B300 | 1 | ! | 620 | | 10.00000 | | 46012 | 0.3 | 2/26/02 18 | 6 CLDK |
| 12 | 2.2: Ondrie (1 oblassia | 130 | ט! | - 1 | T . | | 100.0000 | | - | 21 00 | 1/26/02 183 | 6 Olph |
| !_ | 2.2-oxybis (1 chloropropane) Nitroso-di-n propylamine | | ŭ | ! | 66 55 | | LO . 00000 | * | 46012 | ~ Jos | 2/26/02 201 | U CAOK |
| [" | mas oso-or-or propyramine | | D. | 1 | • | | 10.00000 | | 16012 | 102 | 1/26/02 183 | o otok |
| J | | 1 1 | ٦ | 1 | 51 | 130 | 10.00000! | | 16012 | 102 | /26/02 183 /26/02 183 | 6 ctxx |

Date: 03/01/2002

CUSTOMER: Tetra Tech EM Inc.

PROJECT': START' - CRAVY DEVELO

ATTN: Arme Troup

Customer Sample ID: D3 21 Comp Date Sampled....: 02/19/2002 Time Sampled....: 10:15 Sample Matrix...: Water

Job Number, 208299

Laboratory Sample ID: 208299-1 Date Received: 02/21/2002 Time Received: 08:00

SAMPLE RESULT O FLAGS MOL RLDILUTION UNITS HOTAB DT! DATE/TIME TECH TEST METHOD PARAMETER/TEST DESCRIPTION 110 130 10.00000 uq/L 46012 02/26/02 1836 dok 130 lizachloroethane 02/26/02 1836 dpk 130 50 130 10.00000 ագ/Ն 46012 4-Methylphenol (m/p cresol) 10.00000 uq/L 02/26/02 1836 dok 130 58 130 46012 2-Chlorophenol 02/26/02 1836 drik 130 51 130 10.00000 սց/և 46012 Ni t. robenzene 63 10.00000 ug/I. 46012 02/26/02 1836 dpk 130 Bis(2-chloroethoxy)methane 130 02/26/02 1836 dank 75 130 10.00000 ug/L 46012 130 1,2,4-Triculoroberzene 10.00000 46012 02/26/02 1836 dayk 86 660 ug/L 1600 Renzoic acid 02/26/02 1836 diok 43 130 10.00000 uy/L 46012 Isophorone 130 IKI/L 46012 02/26/02 1836 dok 130 61 130 10.00000 2,4-Dimethylphenol 02/26/02 1836 drik 110 130 10.00000 ug/L 46012 Hexachlorobutadiene 10.00000 ug/I. 46012 02/26/02 1836 dpk 57 130 130 Naphthalene 02/26/02 1836 dipk 57 130 10.00000 ug/L 46012 130 2,4~Dichlorophenol 10.00000 02/26/02 1836 dipk 36 130 ug/L 46012 130 4-Chloroaniline 02/26/02 1836 dink 130 37 130 10.00000 ug/L 46012 2,4,6-Trichlorophenol 02/26/02 1836 dink 660 47 660 10.00000 uq/L 46012 2,4,5 Trichlorophenol 02/26/02 1836 dipk 21 130 10.00000 ug/L 46012 130 Herachlorocyclopentadiene 10.00000 02/26/02 1836 dpk 57 ug/L 46012 130 130 2 Methylnaphthalenc 02/26/02 1836 dok 53 660 10.00000 ug/L 46012 660 2-Nitroaniline ug/L 02/26/02 1836 dok 47 130 10.00000 46012 2-Chloronaphthalene 130 02/26/02 1836 dipk 50 130 10.00000 ug/1. 46012 130 4 Chloro 3-methylphenol 02/26/02 1836 dank 130 39 130 10.00000 un/L 46012 2,6-Dinitrotoluene 02/26/02 1836 disk 57 130 10.00000 ug/L 46012 130 2-Nitrophenoi 02/26/02 1836 dpk 10.00000 46012 660 46 660 uzj/L 3-Nitroaniline 02/26/02 1836 dipk 10.00000 un/L 46012 130 41 130 Dimethyl phthalate 02/26/02 1836 dpk 46012 10.00000 ug/L 660 160 660 2,4-Dinitrophenol 02/26/02 1836 dipk 10.00000 ug/L 46012 130 42 130 Aceraphthylene 02/26/02 1836 apt 41 130 10.00000 uq/L 46012 130 2,4 Dinitrololuene 10.00000 IXI/L 46012 02/26/02 1836 dpk 4! 130 130 Acenaphthene 02/26/02 1836 dpk 10.00000 ug/L 46012 130 Dibenzoturan

^{*} In Description - Dry Wgt

Date: 03/01/2002

CUSTOMER: Tetra Tech EM Inc.

PROJECT: START - CRAVY DEVELO

ATTN: Anne Troup

Customer Sample ID: D3-21 Comp Date Sampled....: 02/19/2002 Time Sampled....: 10:15 Sample Matrix....: Water

Job Number: 208299

Laboratory Sample ID: 208299-1 Date Received..... 02/21/2002 Time Received.....: 08:00

| TEST METHOD | PARAMETER/TEST DESCRIPTION | SAMPLE RESULT | Q | PLAGS | MDL | RL | DILUTION | UNITS | BATCH | DT | DATE/TIME | TEX |
|-------------|-----------------------------|---------------|-----|-------|-----|------|----------|--------|-------|-----|---------------|---------|
| | 4-Nitrophenol | 660 | U | | 93 | 660 | 10.00000 | ug/L | 46012 | | 02/26/02 1836 | dip+ |
| | Fluorene | 130 | יטי | 1 | 53 | 130 | 10.00000 | ug/L | 46012 | | 02/26/02 1836 | dipk |
| | 4-Nitroaniline | 660 | U | ! | 80 | 660 | 10.00000 | ug/L | 46012 | | 02/26/02 1836 | s dap k |
| | 4 Bromophenyl phenyl ether | 130 | U | ! | 38 | 130 | 10.00000 | ug/L | 46012 | ! ! | 02/26/02 1836 | o dopk |
| | Hexachlorobenzene | 130 | ļυļ | ! | 37 | 130 | 10.00000 | ug/L | 46012 | 1 1 | 02/26/02 1836 | dok |
| | Diethyl phthalate | 12000 | 1 ! | ł | 540 | 1300 | 100.0000 | ug/L | 46012 | DI | 02/26/02 2010 |) duk |
| | 4 Chlorophenyl phenyl ether | 130 | U | 1 | 47 | 130 | 10.00000 | ug/L | 46012 | !! | 02/26/02 1836 | cipok |
| | Pentachlorophenol | 660 | U | ! | 61 | 660 | 10.00000 | uq/L | 46012 | 1 | 02/26/02 1836 | dipk |
| | n Nitroeodiphenylamine | 130 | יטן | | 50 | 130 | 10.00000 | ug/I. | 46012 | 1 1 | 02/26/02 1836 | diok |
| | 4,6-Dinitro-2-methylphenol | 660 | Įυ | ļ | 84 | 660 | 10.00000 | ug/L | 46012 | 1 1 | 02/26/02 1836 | dok |
| | Phenanthrene | 130 | U | 1 | 33 | 130 | 10.00000 | ug/L | 46012 | !! | 02/26/02 1836 | وروات ا |
| | Anthracene | 130 | U | - | 33 | 130 | 10.00000 | սգ/ե | 46012 | 1 1 | 02/26/02 1836 | dink |
| | Carbazole | 130 | יט | ; | 37 | 130 | 10.00000 | սց/Լ | 46012 | ! ! | 02/26/02 1836 | o logok |
| | Di n butyl phthalate | 130 | υļ | | 46 | 130 | 10.00000 | ug/L | 46012 | | 02/26/02 1836 | |
| | Benzidine | 1300 | U | | 840 | 1300 | 10.00000 | ug/L | 46012 | ! ! | 02/26/02 1836 | dick |
| | Fluoranthene | 130 | U | | 59 | 130 | 10.00000 | ug/L | 46012 | !! | 02/26/02 1836 | dok |
| | Pyrene | 130 | U | 1 | 51 | 130 | 10.00000 | ug/L | 46012 | ! ! | 02/26/02 1836 | dok |
| | Butyl benzyl phthalate | 130 | יטן | ! | 66 | 130 | 10.00000 | uq/L | 46012 | | 02/26/02 1836 | |
| | Benzo(a)anthracene | 130 | 101 | } | 33 | 130 | 10.00000 | uq/L | 46012 | ! ! | 02/26/02 1836 | dok |
| | Chrysene | 130 | U | ! | 39 | 130 | 10.00000 | uq/L | 46012 | !! | 02/26/02 1836 | dok |
| | 3,3-Dichlorobenzidine | 260 | יט¦ | - ! | 58 | 260 | 10.00000 | ագ/Ն | 46012 | !! | 02/26/02 1836 | s dabik |
| | Bis(2-ethylhexyl)phthalate | 130 | U | | 79 | 130 | 10.00000 | uq/1. | 46012 | !! | 02/26/02 1836 | s look |
| ' | Dien octyl phthalate | 130 | υ | - ! | 57 | 130 | 10.00000 | uq/L | 46012 | ! ! | 02/26/02 1836 | dok |
| | Benzo(b)fluoranthene | 130 | U | 1 | 47 | 130 | 10.00000 | ug/L | 46012 | !! | 02/26/02 1836 | dok |
| , | Benzo (k) f luoranthene | 130 | U | 1 | 49 | 130 | 10.00000 | uq/L | 46012 | | 02/26/02 1836 | |
| 1 | Berizo (a) pyr ene | 130 | U | - 1 | 49 | 130 | 10.00000 | U4/L | 46012 | !! | 02/26/02 1836 | dok |
| , | Indeno(1, 2, 3-cd) pyrenc | 130 | U | 1 | 66 | 130 | 10.00000 | uq/I. | 46012 | | 02/26/02 1836 | |
| , | Dibenzo (a, h) anthracene | 130 | U | | 47 | 130 | 10.00000 | ug/L | 46012 | | 02/26/02 1836 | |
| , | Benzo (ghi) perylene | 130 | lu! | ! | 57 | 130 | 10.00000 | 13/17. | 46012 | | 02/26/02 1836 | |

^{*} In Description : Dry Wgt.

Date: 03/01/2002

CUSTOMER: Tetra Tech EM Inc.

HROJECT: START - CRAVY DEVELO

ATTN: Anne Τιυυρ

Customer Sample ID: D3 21 Comp Date Sampled....: 02/19/2002 Time Sampled....: 10:15 Sample Matrix ...: Water

Job Number: 208299

Laboratory Sample 1D: 208299-1
Date Received.....: 02/21/2002
Time Received.....: 08:00

| est method | PARAMETER/TEST DESCRIPTION | SAMPLE RESULT | Q FLAGS | MDL | RL | DILUTION | UNTTS | BATCH | UT | DATE/TIME | - { |
|------------|--------------------------------|---------------|-------------|-----|-----|----------|-------|-------|-----|---------------|-----|
| 8260R | Volatile Organics | | | | T | | | | | | _ |
| | Dichlorodifluoromethane | 10 | 0 / | 1.4 | 10 | 10.0000 | ug/L | 45930 |]] | 02/26/02 113 | 31 |
| | Chloromethane | 10 | [U] | 1.6 | 10 | 10.0000 | ug/L | 45930 | () | 02/26/02 113 | ij |
| | Vinyl chloride | 10 | U | 1.8 | 10 | 10.0000 | ug/L | 45930 | { } | 02/26/02 113 | 11 |
| | Bronomethane | 10 | \u' | 1.8 | 1.0 | 10.0000 | ug/L | 45930 | 1 1 | 02/26/02 113 | |
| | Chloroethane | 10 | טטט | 2.1 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | TrichLorotluoromethane | 10 | U | 2.2 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | 1,1-Dichloroethene | 10 | \U\ | 1.9 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | Carbon disulfide | 20 | 101 1 | 4.0 | 20 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | Acet une | 1300 | 115 | 75 | 100 | 50.0000 | ug/L | 45930 | | 02/26/02 193 | |
| | Methylene chloride | 10 | {U} | 1.9 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | trans-1,2-Dichloroethene | 10 | Įυ¦ | 2.1 | 10 | 19.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | Methyl tert butyl-ether (MTBE) | 10 | \U\ | 2.1 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | 1,1 Dichloroethane | 10 | บ บ บ | 2.0 | 10 | 10.0000 | ug∕ī. | 45930 | | 02/26/02 113 | |
| | 2,2-Dichloropropane | 10 | [ט] | 2.0 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113. | |
| | cis-1,2-Dichloroethene |] 10 | R | 2.1 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | 2 Butanone (MEK) | 20 | P R | 17 | 20 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | Bromochloromethane | 10 | [u] | 1.9 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | Ciloroform | 10 | U U | 2.3 | 10 | 10.0000 | ug/1. | 45930 | | 02/26/02 113 | |
| | 1,1,1-Trichloroethane | 10 | U | 2.2 | 10 | 10.0000 | ug/1. | 45930 | | 02/26/02 113. | |
| | 1, 1-Dichloropropene | 10 | U | 2.4 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | Carbon tetrachloride | 10 | U | 2.4 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | Benzene | 10 | U | 2.0 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | 1,2-Dichloroethane | 10 | U | 2.5 | 10 | 10.0000 | ug/I. | 45930 | | 02/26/02 113 | |
| | Trichloroethene | 10 | i di | 2.1 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | 1,2 Dichloropropane | 10 | [0] | 2.2 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | Dibromumethane | 10 | ט | 2.6 | 10 | 10.0000 | ing/L | 45930 | | 02/26/02 113 | |
| | BromodichLoxomethane | 10 | U | 2.3 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 113 | |
| | cis-1,3 Dichloropropene | 30 | ប្រ | 2.2 | 10 | 10.0000 | ug/L | 45930 | i i | 02/26/02 113 | ì |

^{*} In Description = Dry Wgt.

Dat.e: 03/01/2002

CUSTOMER: Tetra Tech EM Inc.

PROJECT: START - CRAVY DEVELO

ATTN: Anne Troup

Customer Sample ID: D3-21 Comp Date Sampled....: 02/19/2002 Time Sampled....: 10:15 Sample Mutrix...: Water

Job Number: 208299

Laboratory Sample ID: 208299-1 Date Received...... 02/21/2002 Time Received.....: 08:00

| TEST METHOD | PARAMETER/TEST DESCRIPTION | SAMPLE RESULT | Q FLAGS | MOL | RL | DILUTION | UNITS | BYLCH | DT | DATE/TIME | TEC |
|-------------|-----------------------------|---------------|---------|-----|----|----------|-------|-------|-----|---------------|---------|
| | 4-Methyl-2-pentanone (MIBK) | 20 | W R | 9.2 | 20 | 10.0000 | uq/L | 45930 | | 02/26/02 1131 | jab |
| | Toluene | 11 | 11. | 2.1 | 10 | 10.0000 | ug/Ti | 45930 | 1 1 | 02/26/02 1131 | jab |
| | trans-1,3-Dichloropropene | 10 | U | 2.4 | 10 | 10.0000 | uq/L | 45930 | 1 1 | 02/26/02 1131 | jab |
| | 1,1,2-Trichloroethane | 10 | U | 3.3 | 10 | 10.0000 | ug/L | 45930 | ! ! | 02/26/02 1131 | jab |
| | Tetrachloroethese | 10 | U | 2.0 | 10 | 10.0000 | ug/L | 45930 | 1 1 | 02/26/02 1131 | jah |
| | 1,3 Dichloropropane |] 10 | W R | 2.3 | 10 | 10.0000 | ug/L | 45930 | 1 1 | 02/26/02 1131 | jab |
| | 2 Hexanone | 20 | B R | 12 | 20 | 10.0000 | ug/L | 45930 | ! ! | 02/26/02 1131 | jab |
| | Dibromochloromethane | 10 | บ | 2.3 | 10 | 10.0000 | ug/L | 45930 | 1 1 | 02/26/02 1131 | . jab |
| | 1,2 Dibromoethane (EDR) | 10 | ļυ¦ | 2.5 | 10 | 10.0000 | ug/L | 45930 | 1 1 | 02/26/02 1131 | ı¦jal: |
| | Chlorobenzene | 10 | יט | 2.2 | 10 | 10.0000 | ug/L | 45930 |]] | 02/26/02 1131 | .¦jab |
| | 1,1,1,2 Tetrachloroethane | 10 | U | 2.1 | 10 | 10.0000 | ug/L | 45930 | ! ! | 02/26/02 1131 | .¦jaab |
| | Ethylbenzene | 10 | U | 2.0 | 10 | 10.0000 | ug/L | 45930 | 1 | 02/26/02 1131 | .¦ja£ |
| | map-Xylenes | 20 | υ | 3.9 | 20 | 10.0000 | ug/L | 45930 | ! ! | 02/26/02 1131 | i jab |
| | o-Xylene | 10 | ט | 2.1 | 10 | 10.0000 | ug/I | 45930 | 1 1 | 02/26/02 1131 | i jah |
| | Styrene | 10 | υl | 2.3 | 10 | 10.0000 | ug/L | 45930 | ! ! | 02/26/02 1131 | i¦jah |
| | Bramoform | 10 | U. | 2.2 | 10 | 10.0000 | ug/L | 45930 | 1 1 | 02/26/02 1131 | .¦jab |
| | Is-propylbenzene | 10 | v | 2.1 | 10 | 10.0000 | ug/L | 45930 | 1 | 02/26/02 1131 | .¦jat⊬ |
| | Bromobenzene | 10 | บ | 2.2 | 10 | 10.0000 | ug/L | 45930 | 1 1 | 02/26/02 1131 | i jab |
| | 1,1,2,2-Tetrachloroethane | 10 | U | 2.5 | 10 | 10.0000 | ug/I | 45930 | 1 1 | 02/26/02 1131 | ı jab |
| | 1,2,3-Trichloropropane | 10 | υ | 2.0 | 10 | 10.0000 | ug/I | 45930 | 1 1 | 02/26/02 1131 | ı jab |
| | n-Propylbenzene | 10 | U | 2.5 | 10 | 10.0000 | ug/L | 45930 | 1 1 | 02/26/02 1131 | i jab |
| | 2 Chlorotoluene | 10 | lυ | 2.2 | 10 | 10.0000 | ug/L | 45930 | 1 | 02/26/02 1131 | i jab |
| | 1,3,5-Trimethylbenzene | 10 | U | 2.0 | 10 | 10.0000 | ug/L | 45930 | ! ! | 02/26/02 1131 | i jar |
| | 4-Chlorotoluene | 10 | U | 2.2 | 10 | 10.0000 | ug/L | 45930 | ! | 02/26/02 1131 | i jah |
| | tert-Butylberizene | 10 | U | 2.1 | 10 | 10.0000 | 129/1 | 45930 | ! ! | 02/26/02 1131 | i jak |
| | 1,2,4-Trimet hylbenzene | 10 | U | 2.0 | 10 | 10.0000 | uq/I | 45930 | 1 | 02/26/02 1131 | ı jab |
| | sec Butylbenzene | 10 | lu | 2.2 | 10 | 10.0000 | ug/L | 45930 | 1 | 02/26/02 1131 | ı¦jab |
| | 1,3-Dichlorobenzene | 10 | U | 2.3 | 10 | 10.0000 | uq/L | 45930 | 1 | 02/26/02 1131 | ı ¦ jar |
| | p Isopromyltoluene | 10 | u | 2.2 | 10 | 10.0000 | uq/L | 45930 | ! | 02/26/02 1131 | ı!iak |

^{*} In Description : Dry Wgt.

Job Number: 208299

Date: 03/01/2002

CUSTOMER: Tetra Tech EM Inc.

PROJECT: START - CRAVY DEVFLO

ATTN: Arme Troup

Customer Sample ID: D3-21 Comp Date Sampled....: 02/19/2002 Time Sampled....: 10:15 Sample Matrix...: Water laboratory Sample ID: 208299-1 Date Received.....: 02/21/2002

Time Received.....: 08:00

| Test Method | PARAMETER/TEST DESCRIPTION | SAMPLE RESULT | QF | LAGS | MDL | RL | DILUTION | UNTIS | BATCH | DT | DATE/TIME | тесн |
|-------------|-----------------------------|---------------|-----|------|-----|-----|----------|-------|----------|-----|---------------|------|
| | 1,4-Dichlorobenzene | 10 | U | | 2.2 | 10 | 10.0000 | ug/L | 45930 | 1 7 | 02/26/02 1131 | Jab |
| | n-Butylbenzene | 10 | U | - 1 | 2.2 | 10 | 10.0000 | ug/L | 45930 | | 02/26/02 1331 | |
| | 1,2-Dichlorobenzene | 10 | U | | 2.4 | 1.0 | 10.0000 | ug/L | 45930 | ! | 02/26/02 1131 | jab |
| | 1,2-Dibromo-3 chioropropane | 10 | U. | } | 4.6 | 10 | 10.0000 | urg/L | 45930 | 1 1 | 02/26/02 1131 | jado |
| | 1,2,4 Trichlorobenzene | 10 | υl | 1 | 2.3 | 10 | 10.0000 | uq/L | 45930 | | 02/26/02 1131 | |
| | Hexachlorobutadiene | 10 | יטן | i | 2.4 | 10 | 10.0000 | υg/L | 45930 | | 02/26/02 1131 | |
| | Naphtha lene | 10 | ט | 1 | 3.4 | 10 | 10.0000 | | 45930 | | 02/26/02 1131 | |
| | 1,2,3-Trichlombenzene | 10 | U | - | 2.4 | 10 | 10.0000 | ug/L | 45930 | 1 1 | 02/26/02 1131 | jab |
| | | | 11 | · | ŀ | | i i | | j | i | | i |
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^{*} In Description - Dry Wgt.

Job Number: 208299

Date: 03/01/2002

CUSTOMER: Tetra Tech EM Inc.

PROJECT: START - CRAVY DEVISLO

ATTN: Anne Troup

Customer Sample ID: D28
Date Sampled....: 02/19/2002
Time Sampled....: 10:15
Sample Matrix...: Water

Laboratory Sample ID: 208299-2
Date Received....: 02/21/2002

Time Received....: 08:00

| EST METHOD | PARAMETER/TEST DESCRIPTION | SAMPLE RESULT | Q FLA | CS MOL | RL | DILUTION | UNITS | BATCH | DT | DATE/TUME | TEX |
|------------|--|---------------|----------|------------|------|----------|-----------|-------|-----|---------------|-------|
| 8082 | PCB Analysis | | | | | | | | | | |
| | Aroclor 1016, Oil | 1100 | ļυļ | 1100 | 1100 | 5.00000 | ug/Kg | 46000 | 1 1 | 02/27/02 2227 | / mg/ |
| | Aroclor 1221, Oil | 1100 | υļ | 1100 | 1100 | 5.00000 | ug/Kg | 46000 | | 02/27/02 2227 | |
| | Aroclor 1232, Oil | 1100 | U | 1100 | 1100 | 5.00000 | ug/Kg | 46000 | 1 1 | 02/27/02 2227 | / mgd |
| | Aroclor 1242, Oil | 1)00 | יט | 1100 | 1100 | 5.00000 | ug/Kg | 46000 | | 02/27/02 2227 | |
| | Aroclor 1248, Oil | 1100 | U | 1100 | 1100 | 5.00000 | ug/Kg | 46000 | | 02/27/02 2227 | |
| | Aroclor 1254, Oil | 1100 | U | 1100 | 1100 | 5.00000 | ug/Kg | 46000 | 1 1 | 02/27/02 2227 | / mg |
| | Amelor 1260, Oil | 1100 | U | 1100 | 1100 | 5.00000 | ug/Kg | 46000 | | 02/27/02 2227 | / m/3 |
| 9076 | Halide, Total Organic as Cl (TOX) | | !! . | , <u> </u> | ļ | İ | ļ | ļ | | | 1 |
| | TOX Average Duplicates, Oil | 420 | | 5.0 | 5.0 | 1 | mg/Kg | 46039 | | 02/26/02 1720 |) cl |
| D240 | BTU analysis | | | ļ | | İ | 1 | İ | | | |
| | BID/lb, Oit | 19250 | | | 350 | 1 | BIU/1P | 46079 | | 02/28/02 1500 |) a |
| 1010 | Ignitability (Pensky-Martens Closed-Cup) | | | į | į | ļ | į | | | | |
| | Ignitability (Flashpoint), Oil | 120 | | | | 1 | dogrees F | 15944 | | 02/27/02 1103 | 3¦jr |
| | | | <u> </u> | į | į | Ì | į | Ţ | | | İ |
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| | | į | | 1 | 1 | i | 1 | 1 | Ţ | ! | - |

^{*} In Description - Dry Wgt.



200 E. Randolph Drive, Suite 4700 ◆ Chicago, IL 60601 ◆ (312) 856-8700 ◆ FAX (312) 938-0118

MEMORANDUM

Date:

14 Jun 02

To:

Brad White, Project Manager, Tetra Tech EM Inc. (Tetra Tech)

Superfund Technical Assessment and Response Team (START) for Region 5

From:

Harry Ellis, Chemist, Tetra Tech START for Region 5

Subject:

Data Validation for

Gary Development Landfill Site

Gary, Indiana

Analytical Technical Direction Document (TDD) No. S05-0205-001

Project TDD No. S05-0201-005

Laboratory: Great Lakes Analytical (GLA), Buffalo Grove, Illinois

Work Order No. B205134

Total Metals, Volatile Organic Compound (VOC), Semivolatile Organic Compound (SVOC), and Polychlorinated Biphenyl (PCB) Analyses of Five Surface Water Samples and One Trip

Blank

1.0 INTRODUCTION

The Tetra Tech START for Region 5 validated total metals, VOC, SVOC, and PCB analytical data for five surface water samples and one trip blank collected on 09 May 02 from the Gary Development Landfill site in Gary, Indiana. The trip blank was analyzed for VOCs only. The samples were analyzed under the above-referenced work order by GLA using U.S. Environmental Protection Agency (U.S. EPA) SW-846 Methods 6010B, 7421, and 7470A for total metals analysis; 8260B for VOC analysis; 8270C for SVOC analysis; and 8082 for PCB analysis.

The data were validated in general accordance with U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Organic Data Review" dated Oct 99 and "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated Feb 94. Organic data validation

consisted of a review of the following quality control (QC) parameters: holding times, instrument performance checks, initial and continuing calibrations, blank results, surrogate recovery results, matrix spike and matrix spike duplicate (MS/MSD) results, laboratory control sample and laboratory control sample duplicate (LCS/LCSD) results, internal standard (IS) area counts, and target compound identification. Inorganic data validation consisted of a review of the following QC parameters: holding times, initial and continuing calibrations, blank results, LCS results, interference check sample (ICS) results, and MS/MSD results.

Section 2.0 discusses the results of the organic data validation, Section 3.0 discusses the results of the inorganic data validation, and Section 4.0 presents an overall assessment of the data. The attachment to this memorandum contains GLA's summary of analytical results as well as START's handwritten data qualifications where warranted.

2.0 ORGANIC DATA VALIDATION RESULTS

The results of START's organic data validation are summarized below in terms of the QC parameters reviewed. The data qualifier below was applied to the sample analytical results where warranted (see the attachment).

• UJ - The compound was not detected in the sample. The reported quantitation limit is considered estimated for QC reasons.

2.1 HOLDING TIMES

The samples were analyzed within the holding time limits of (1) 14 days to extraction and 40 days from extraction to analysis for SVOCs and PCBs and (2) 14 days to analysis for VOCs.

2.2 INSTRUMENT PERFORMANCE CHECKS

The decafluorotriphenylphosphine and bromofluorobenzene instrument performance checks met the QC abundance criteria for the SVOC and VOC analyses, respectively. The chromatographic resolution was adequate for the PCB analysis.

2.3 INITIAL AND CONTINUING CALIBRATIONS

For the VOC and SVOC analyses, either the relative standard deviation (RSD) for the initial calibration result was less than or equal to the QC limit of 30 percent or the correlation coefficient exceeded the QC limit of 0.99 for detected target compounds. All average response factors were acceptable. The continuing calibration results were less than or equal to the QC limit of 25 percent difference (%D) between the initial calibration relative response factor with the following exceptions. In the VOC analyses, the %D exceeded the QC limit of 25 percent for the following analytes: acetone, bromomethane, 2-butanone, carbon disulfide, carbon tetrachloride, chloroethane, chloromethane, 2-hexanone, methylene chloride, 4-methyl-2-pentanone, and vinyl acetate. In the SVOC analyses, the %D exceeded the QC limit of 25 percent for the following analytes: aniline; 4,6-dinitro-2-methylphenol; 2,4-dinitrophenol; and 4-nitrophenol. Therefore, the nondetected results for those compounds were flagged "UJ" to indicate that the quantitation limit is estimated.

For the PCB analysis, the initial calibration result was within the QC limit of less than or equal to 20 percent RSD for the average of the five calibration factors (CF) for a single Aroclor. The continuing calibration standards were within the QC limit of less than or equal to 15 %D between the mean CF for the initial calibration curve and the CF for the continuing calibration.

2.4 BLANK RESULTS

A method blank was run with the analytical batch in the proper sequence. No target compounds were detected in the blank for the VOC, SVOC, or PCB analysis. Additionally, no VOC compounds were detected in the trip blank.

2.5 SURROGATE RECOVERY RESULTS

For the VOC analysis, all surrogate recoveries were within the laboratory-established QC limits. For the SVOC analysis, there were irregular recoveries for some surrogates in all samples. In sample GD-SW-0203-01, all surrogate recoveries were negligible or zero. This may be due to a laboratory error (not spiking the sample) or to severe matrix interference, but all SVOC results for that sample are flagged "UJ" to indicate that the reporting limits are estimated. In the other samples, the recoveries for two of the three acidic surrogates were below the laboratory-specified QC limits. All recoveries for acidic analytes in these samples are similarly flagged "UJ." Surrogate recoveries were within the QC limits specified by the laboratory for the PCB analysis.

2.6 MS/MSD RESULTS

MSs and MSDs were analyzed during the organic analyses using sample GD-SW-0809-04. In the VOC analysis, recoveries of vinyl acetate were 260 and 238 percent, respectively, versus QC limits of 10 to 239 percent. These high recoveries seem to be the result of the irregular continuing calibration result for that analyte; therefore, no further qualifications are warranted. In the SVOC MS sample, all recoveries were below their laboratory-specified QC limits. In the SVOC MSD sample, most recoveries were below QC limits and most relative percent difference (RPD) results exceeded their QC limits. Due to this severe matrix interference in this MS/MSD sample, all results for the parent sample (GD-SW-0809-04) are qualified "UJ" to indicate that the quantitation limits are estimated and biased low.

No MS/MSD analysis was performed for the PCB analysis. No qualifications were applied for this data gap.

2.7 LCS/LCSD RESULTS

For the VOC and PCB analyses, all LCS/LCSD recoveries were within the QC limits specified by the laboratory. For the SVOC analysis, most LCS/LCSD recoveries were within the QC limits specified by the laboratory. However, m+p-cresol, 4-nitrophenol, and phenol had slightly low recoveries in both the LCS and the LCSD samples (for example, 23.8 and 22.4 percent versus QC limits of 24.3 to 110 percent for m+p-cresol), and o-cresol had a slightly low recovery in the LCSD sample only. No qualifications are warranted for these minor deviations.

2.8 IS AREA COUNTS

For the VOC analyses, the IS area counts were within the QC limits of -50 to +100 percent of those for the calibration standard. Most SVOC IS area counts were within the QC limits, but perylene-d12, the last of six ISs, had slightly low area counts in samples GD-SW-0203-01D, GD-SW-1213-03, and GD-SW-0809-04. Similar low area counts were seen in the LCSD and MSD samples. All results for the analytes quantitated against perylene-d12 are therefore flagged "UJ" as estimates. The retention times for the ISs were within the QC limit of ±30 seconds for all VOC and SVOC analyses. ISs are not used in the PCB analysis.

2.9 TARGET COMPOUND IDENTIFICATION

The field sample did not contain measurable amounts of VOCs, SVOCs, or PCBs. The SVOC chromatograms show a large number of small peaks merging into a hump in the area associated with polynuclear aromatic hydrocarbons. However, none of the analytes could be distinguished from this mass.

3.0 INORGANIC DATA VALIDATION RESULTS

The results of START's inorganic data validation are summarized below in terms of the QC parameters reviewed. The data qualifier below was applied to the sample analytical results where warranted (see the attachment).

• U - The analyte was not detected. The reported numerical value is the sample quantitation limit.

3.1 HOLDING TIMES

The samples were analyzed within the holding time limits of (1) 28 days for mercury and (2) 6 months for other metals.

3.2 INITIAL AND CONTINUING CALIBRATIONS

During the initial and continuing calibrations, recoveries were within the QC limits of 80 to 120 percent for mercury and 90 to 110 percent for other metals.

3.3 BLANK RESULTS

Appropriate blanks, such as initial calibration blanks, continuing calibration blanks, and method blanks, were run with each analytical batch. No target analytes were detected in the blanks at concentrations above the reporting limits, but trace concentrations of several metals were detected in several blanks. In most cases, no qualifications are warranted because the sample results were greater than five times the blank concentration. However, four of the chromium results failed that criterion; therefore, these results in the investigative samples were flagged "U" to indicate that they may be laboratory artifacts.

3.4 LCS RESULTS

An LCS was analyzed with each analytical batch. The recoveries were within the laboratory-established QC limits for each target analyte.

3.5 ICS RESULTS

The ICS results were within the QC limit of 80 to 120 percent recovery.

3.6 MS/MSD RESULTS

MSs and MSDs were analyzed with the samples. All percent recoveries were within the QC limits established by the laboratory with the following exception. The percent recovery for sodium for the MSD was biased low and outside the QC limit. However, the sample used for these MS/MSD analyses was from another site; therefore, no qualifications are warranted for the sample data being validated.

4.0 OVERALL ASSESSMENT OF DATA

Overall, the sample analytical data generated by GLA are acceptable for use as qualified. The primary problem was the matrix interference in the SVOC analyses. Part of this interference may be due to the nontarget SVOCs present on the sample chromatograms, but nonvolatile compounds are probably the primary or sole source of the interference.

ATTACHMENT

GLA SUMMARY OF ANALYTICAL RESULTS

(23 Sheets)



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

: **T**

200 E. Randolph Suite 4700

Chicago IL, 60601

Project: Gary Development Landfill

Project Number: N/A

Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical

| Analyte | Result | Reporting Limit | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------------------------|-----------------|--------------------|----------|--------------|---------|----------|----------|-----------|-------|
| GD-SW-0203-01 (B205134-01) Water | Sampled: 05/09/ | 02 14:40 | Received | : 05/10/02 0 | 9:39 | | | | |
| Mercury | 0.000368 | 0.000200 | mg/l | 1 | 2050271 | 05/15/02 | 05/15/02 | EPA 7470A | |
| Aluminum | ND | 0.500 | " | * | 2050233 | 05/13/02 | 05/16/02 | EPA 6010B | |
| Antimony | ND | 0.100 | *1 | 0 | n | 19 | •• | н | |
| Arsenic | ND | 0.0500 | n | ** | ** | n | ** | ** | |
| Barium | ND | 0.500 | n | ** | ** | " | n | * | |
| Beryllium | ND | 0.0100 | n | 11 | ** | ** | n | ** | |
| Cadmium | ND | 0.00500 | ** | u | ** | ** | ** | ** | |
| Calcium | 39.3 | 5.50 | ** | 11 | ** | ** | н | ** | |
| Chromium | 0.0112 | 0.0100 | ** | 1 | * | * | н | * | _ |
| Cobalt | ND | 0.0500 | | ** | ** | " | •• | *1 | |
| Copper | 0.0998 | 0.0500 | ** | ,, | ** | " | | н | |
| Iron | 0.260 | 0.100 | " | | ** | • | | ** | |
| Magnesium | 108 | 5.50 | | 11 | ** | | | • | |
| Manganese | 0.0752 | 0.0500 | ** | 1 | н | н | •• | н | |
| Nickel | ND | 0.0500 | n | * | ** | | • | | |
| Potassium | 135 | 5.50 | ** | 11 | ** | • | н | * | |
| Selenium | ND | 0.0500 | , | 1 | | н | # | н | |
| Silver | ND | 0.0500 | | , | ** | n | ** | • | |
| Sodium | 794 | 25,5 | н | 51 | | | " | | QC |
| Thallium | ND | 0.100 | | l | | | ** | | Ψ. |
| Vanadium | ND ND | 0.0450 | | " | H | н | | n | |
| Zinc | ND | 0.500 | ** | ** | ** | ,, | н | ** | |
| Lead | 0.00938 | 0.00500 | n | н | н | | 05/15/02 | EPA 7421 | |
| | | | | | | | 03/13/02 | LFA /421 | |
| GD-SW-0203-01D (B205134-02) Water | | | | ed: 05/10/02 | | | | | |
| Mercury | ND | 0.000200 | • | 1 | 2050271 | 05/15/02 | 05/15/02 | EPA 7470A | |
| Aluminum | ND | 0.500 | | ** | 2050233 | 05/13/02 | 05/16/02 | EPA 6010B | |
| Antimony | ND | 0.100 | н | ** | ** | • | " | • | |
| Arsenic | ND | 0.0500 | | " | * | H | • | * | |
| Barium | ND | 0.500 | ** | ** | n | ** | n | ** | |
| Beryllium | ND · | 0.0100 | | н | * | ** | " | • | |
| Cadmium | ND | 0.00500 | " | " | " | * | • | • | |
| Calcium | 39.2 | 5.50 | | 11 | " | " | * | ** | |
| Chromium | 0.0121 니 | 0.0100 | | 1 | n | * | ** | * | |
| Cobalt | ND | 0.0500 | n | " | ** | ** | ** | * | |
| Copper | 0.0717 | 0.0500 | ** | * | " | * | ** | н | |
| | 0.253 | 0.100 | ** | * | ** | ** | n | " | |
| Iron | | | | 11 | • | • | ** | ** | |
| | 107 | 5.50 | | | | | | | |
| Magnesium | 107 0.0741 | 5.50 0.0500 | | 1 | * | r | H | ** | |
| | | | | | H | n | 11 | ** | |
| Magnesium Manganese | 0.0741 | 0.0500 | 11 | 1 | | | | ** ** | |

Great Lakes Analytical

HR&

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Terra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago 1L, 60601

Project Number: N/A

Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|-----------------------------------|---------------|--------------------|-----------|-------------|---------|----------|----------|-----------|------|
| GD-SW-0203-01D (B205134-02) Water | Sampled: 05/ | /09/02 13:40 | Receive | d: 05/10/02 | 09:39 | | | | |
| Silver | ND | 0.0500 | mg/l | l | 2050233 | 05/13/02 | 05 16 02 | EPA 6010B | |
| Sodium | 787 | 25.5 | ** | 51 | н | ** | •• | * | Q |
| Thallium | ND | 0,100 | | 1 | " | * | ** | • | |
| Vanadium | ND | 0.0450 | •• | " | * | • | • | * | |
| Zinc | ND | 0.500 | * | • | • | * | • | ** | |
| Lead | 0.00647 | 0.00500 | * | " | ** | ** | 05/15/02 | EPA 7421 | |
| GD-SW-0405-02 (B205134-03) Water | Sampled: 05/0 | 9/02 15:05 | Received: | 05/10/02 (| 9:39 | | | | |
| Mercury | ND | 0.000200 | mg/l | 1 | 2050271 | 05/15/02 | 05/15/02 | EPA 7470A | |
| ruminum | ND | 0.500 | * | • | 2050233 | 05:13/02 | 05/16/02 | EPA 6010B | |
| Antimony | ND | 0.100 | н | н | " | 11 | ** | ** | |
| Arsenic | ND | 0.0500 | " | ** | ** | n | ** | # | |
| Barium | ND | 0.500 | ** | " | * | ** | ** | н | |
| Beryllium | ND | 0.0100 | ** | ** | н | н | ** | •• | |
| Cadmium | ND | 0.00500 | н | | •• | | • | * | |
| Calcium | 39.2 | 5.50 | • | 11 | • | • | ** | н | |
| Chromium | 0.0129 | 0.0100 | | 1 | н | • | ** | n | |
| Cobalt | ND | 0.0500 | H | н | * | " | ** | • | |
| Copper | ND | 0.0500 | tt | * | | • | • | ** | |
| Iron | 0.258 | 0.100 | ** | ** | * | | н | 11 | |
| Magnesium | 107 | 5.50 | ** | 11 | n | * | " | * | |
| Manganese | 0.0713 | 0.0500 | ** | 1 | ** | ** | ** | n | |
| Nickel | ND | 0.0500 | 'n | ** | ** | ** | • | ** | |
| Potassium | 134 | 5.50 | ** | 11 | * | Ħ | ** | ** | |
| Selenium | ND | 0.0500 | * | 1 | n | n | * | ** | |
| Silver | ND | 0.0500 | r | * | • | •• | * | • | |
| dium | 784 | 25.5 | | 51 | ** | • | n | ** | (|
| allium | ND | 0.100 | | 1 | * , | * | ri | н | |
| Vanadium | ND | 0.0450 | ** | • | # | ** | • | ** | |
| Zinc | ND | 0.500 | и | " | ** | * | ıı | ** | |
| Lead | ND | 0.00500 | | ** | • | ** | 05/15/02 | EPA 7421 | |

Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

200 E. Randolph Suite 4700 Chicago IL, 60601

Project: Gary Development Landfill

Project Number: N/A

Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical

| Analyte | Result | Reporting Limit | | Dilution | Batch | Prepared | Analyzed | Method | Note: |
|----------------------------------|-----------------|--------------------|----------|--------------|---------|----------|----------|-----------|-------|
| GD-SW-1213-03 (B205134-04) Water | Sampled: 05/09/ | 02 15:30 | Received | : 05/10/02 0 | 9:39 | | | | |
| Mercury | ND | 0.000200 | mg/l | 1 | 2050271 | 05/15/02 | 05/15/02 | EPA 7470A | |
| Aluminum | ND | 0.500 | ** | n n | 2050233 | 05/13/02 | 05 16 02 | EPA 6010B | |
| Antimony | ND | 0.100 | 11 | ** | •• | ** | ** | m | |
| Arsenic | ND | 0.0500 | • | * | " | n | ** | ** | |
| Barium | ND | 0.500 | * | " | n | • | •• | ** | |
| Beryllium | ND | 0.0100 | n | • | ,, | , | • | pt . | |
| Cadmium | ND | 0.00500 | " | | • | | " | ** | |
| Calcium | 38.5 | 5.50 | " | 11 | н | ** | " | ** | |
| Chromium | 0.0119 4 | 0.0100 | ** | 1 | | • | ** | ** | _ |
| Cobalt | ND | 0.0500 | n | ** | | ** | ** | н | |
| Соррет | ND | 0.0500 | | 71 | ** | ** | ** | •• | |
| lron | 0.339 | 0.100 | | и | и | ** | 11 | ** | |
| Magnesium | 107 | 5.50 | | 11 | ** | n | •• | ** | |
| Manganese | 0.130 | 0.0500 | | 1 | >> | | ** | n | |
| Nickel | 0.0581 | 0.0500 | | | | | ** | | |
| Potassium | 135 | 5.50 | | 11 | | " | | | |
| Selenium | ND | 0.0500 | | 1 | ** | | ,, | н | |
| Silver | ND | 0.0500 | | * | | ** | ** | ** | |
| Sodium | 793 | 25.5 | | 51 | ** | ** | | • | Q |
| Thallium | ND | 0.100 | | J, | ** | ** | н | H | • |
| Vanadium | ND | 0.0450 | | , | ** | ** | | ** | |
| Zinc | ND | 0.500 | | | | н | | | |
| Lead | ND ND | 0.00500 | | ** | ** | 11 | 05 15/02 | EPA 7421 | |
| | | | | 0.000.000 | | | 03 13/02 | EFA /421 | |
| GD-SW-0809-04 (B205134-05) Water | | | | : 05/10/02 (|)9:39 | | | | |
| Mercury | ND | 0.000200 | - | 1 | 2050271 | 05/15/02 | 05/15/02 | EPA 7470A | |
| Aluminum | ND | 0.500 | 11 | " | 2050233 | 05/13/02 | 05/16/02 | EPA 6010B | |
| Antimony | ND | 0.100 | ** | • | •• | * | | * | |
| Arsenic | ND | 0.0500 | * | * | * | • | ** | н | |
| Barium | ND | 0.500 | 11 | " | ,, | H | ıı. | * | |
| Beryllium | ND | 0.0100 | ** | 11 | f1 | н | # | * | |
| Cadmium | ND | 0.00500 | | • | ** | ** | # | # | |
| Calcium | 39.2 | 5.50 | •• | 11 | Ħ | 11 | н | * | |
| Chromium | 0.0104 U | 0.0100 | | 1 | н | " | •• | ** | |
| Cobalt | ND | 0.0500 | | | | n | • | H | |
| Copper | ND | 0.0500 | | | * | ** | * | ** | |
| iron | 0.323 | 0.100 | | ** | ** | n | ч | ** | |
| Magnesium | 108 | 5.50 | | 11 | w | ** | " | te | |
| Manganese | 0.0788 | 0.0500 | | 1 | ** | n | " | * | |
| Nickel | ND | 0.0500 | | , | ** | n | n | ** | |
| Potassium | 135 | 5.50 | | 11 | | | n | n | |
| Potassium | 1.1.7 | | | | | | | | |

Great Lakes Analytical

Andy Johnson

4UF 11Jun Ø 2 The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

200 E. Randolph Suite 4700

Chicago IL, 60601

Project: Gary Development Landfill

Project Number: N/A

Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Total Metals by EPA 6000/7000 Series Methods

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|----------------|--------------------|----------|------------|---------|----------|----------|-----------|-------|
| GD-SW-0809-04 (B205134-05) Water | Sampled: 05/09 | 9/02 16:00 1 | Received | 05/10/02 (| 9:39 | | | | |
| Silver | ND | 0.0500 | mg/l | i | 2050233 | 05/13/02 | 05 16 02 | EPA 6010B | |
| Sodium | 788 | 25.5 | • | 51 | ** | " | •• | Ħ | QC |
| Thallium | ND | 0.100 | ** | 1 | ** | * | " | ** | |
| Vanadium | ND | 0.0450 | н | ** | ** | ** | " | ** | |
| Zinc | ND | 0.500 | * | н | 11 | * | • | • | |
| Lead | ND | 0.00500 | ** | ** | ** | • | 05/15/02 | EPA 7421 | |

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Tetra Tech EMI - IL

200 E. Randolph Suite 4700

Chicago IL, 60601

Project: Gary Development Landfill

Project Number: N/A

Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Analyte | Result | porting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|--|-------------------|------------------|-------------|----------|---------|----------|----------|-------------|------|
| GD-SW-0203-01 (B205134-01) Water | Sampled: 05/09/02 | 14:40 | Received: 0 | 5/10/02 | 09:39 | | | | Q |
| Acetone | ND WI | 10.0 | ug/l | 1 | 2050228 | 05/13/02 | 05 13 02 | 5030B 8260B | |
| Benzene | ND | 2.00 | ** | ** | ** | ** | ** | ** | |
| Bromodichloromethane | ND | 2.00 | ** | * | ** | ,, | ** | ** | |
| Bromoform | ND | 2.00 | ** | н | н | ** | • | * | |
| Bromomethane | LU DN | 2.00 | " | н | н | 11 | ** | ** | |
| 2-Butanone | ND WS | 10.0 | ** | • | ** | ** | ** | ** | |
| Carbon disulfide | ND W | 2.00 | ** | • | ** | ** | " | • | |
| Carbon tetrachloride | Z ~ dn | 2.00 | n | 11 | n n | " | ** | * | |
| Chlorobenzene | ND | 2.00 | ,, | ** | ** | ** | • | •• | _ |
| Chlorodibromomethane | ND | 2.00 | | ** | ** | ** | ** | ** | |
| Chloroethane | ED U N | 2.00 | ,, | ** | •• | | " | • | |
| Chloroform | ND | 2.00 | 11 | | n | n | ** | н | |
| Chloromethane | NDUZ | 2.00 | ** | ** | н | ** | | н | |
| 1.1-Dichloroethane | ND | 2.00 | ** | ** | ** | n | ** | | |
| 1.2-Dichloroethane | ND | 2.00 | ** | ** | ** | ** | ** | | |
| 1,1-Dichloroethene | ND | 2.00 | ** | ** | " | ** | w | * | |
| cis-1.2-Dichloroethene | ND | 2.00 | •• | ** | 11 | 'n | n | n | |
| trans-1,2-Dichloroethene | ND | 2.00 | ** | " | ** | н | | * | |
| 1,2-Dichloropropane | ND | 2.00 | | " | | ** | ** | ** | |
| 1,3-Dichloropropene (cis + trans) | ND | 2.00 | | ** | ** | ** | н | ** | |
| Ethylbenzene | ND | 2.00 | ** | •• | •• | ** | ** | ** | |
| 2-Hexanone | ND UZ | 10.0 | ** | * | ** | ** | ** | ** | |
| Methylene chloride | ND WI | 2.00 | | | n | * | | * | |
| 4-Methyl-2-pentanone | ND UJ | 10.0 | ** | ** | | | ** | 11 | |
| Styrene | ND | 2.00 | ** | | •• | " | | •• | |
| 1,1,2,2-Tetrachloroethane | ND | 2.00 | ** | ** | ** | | ** | | |
| Tetrachloroethene | ND | 2.00 | | n | ** | н | ,, | | • |
| Toluene | ND | 2.00 | | ,, | , " | " | ** | | |
| 1.1.1-Trichloroethane | ND | 2.00 | | ** | ** | ** | ** | | |
| 1,1,2-Trichloroethane | ND | 2.00 | | | | n | n | ** | |
| Trichloroethene | ND | 2.00 | • | ** | ** | ,, | ** | ** | |
| Trichlorofluoromethane | ND | 2.00 | ** | | | | ** | n | |
| Vinyl acetate | ND W | 2.00 | | | | 11 | ** | ** | |
| Vinyl chloride | ND W 3 | 2,00 | ,, | 19 | | | " | | |
| Total Xylenes | ND | 4.00 | и | н | | ** | ** | | |
| The state of the s | | | | | | ,, | " | ,, | |
| Surrogate: Dibromofluoromethane | | 101 % | | | | | " | " | |
| Surrogate: 1,2-Dichloroethane-d4 | | 91.0 % | | | | " | " | | |
| Surrogate: Toluene-d8 | | 100 % | | | ,, | " | | | |
| Surrogate: 4-Bromofluorobenzene | | 94.0 % | 82.2-1 | 10 | " | " | ,, | ** | |

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Great Lakes Analytical

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A

Reported:

Chicago IL, 60601

Project Manager: Lisa Graczyk

05/21/02 08:54

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|----------------------------------|--------------|--------------------|----------|------------|---------|------------|----------|-------------|------|
| D-SW-0203-01D (B205134-02) Water | Sampled: 05/ | /09/02 13:40 | Received | : 05/10/02 | 09:39 | <u>-</u> - | | | Q |
| cetone | ND U | 10.0 | ug/l | 1 | 2050228 | 05/13/02 | 05:13-02 | 5030B 8260B | |
| enzene | ND | - 2.00 | | ** | ** | * | • | • | |
| romodichloromethane | ND | 2.00 | ** | • | * | ** | ** | • | |
| romoform | ND | 2.00 | n | ** | | ** | н | | |
| romomethane | ND U | 2.00 | | *1 | ** | ** | н | • | |
| -Butanone | ND 🕨 | 5 10.0 | ** | ** | # | • | * | • | |
| arbon disulfide | ND U | | | * | н | * | •• | | |
| arbon tetrachloride | ND U | _ | ** | • | ** | ** | ** | * | |
| ilorobenzene | ND | 2.00 | н | ** | Ħ | Ħ | 11 | | |
| nlorodibromomethane | ND | 2.00 | ** | " | | •• | •• | | |
| hloroethane | ND U | 2.00 | | ** | ** | ** | ** | • | |
| hloroform | ND | 2.00 | ** | * | ** | ,, | | H | |
| Thloromethane | ND C | | | ** | н , | " | н | n | |
| ,1-Dichloroethane | ND | 2.00 | 1+ | ** | H | н | ** | H | |
| ,2-Dichloroethane | ND | 2.00 | •• | * | | n | •• | | |
| .I-Dichloroethene | ND | 2.00 | • | | •• | • | | | |
| is-1.2-Dichloroethene | ND | 2.00 | •• | | | ** | • | | |
| rans-1.2-Dichloroethene | ND | 2.00 | " | | | ,, | | * | |
| .2-Dichloropropane | ND | 2.00 | ** | | • | ** | н | ** | |
| ,3-Dichloropropene (cis + trans) | ND | 2.00 | ** | | | и | " | ** | |
| ithylbenzene | ND | 2.00 | | ** | ** | 11 | ** | ** | |
| -Hexanone | ND W | | ** | ** | ** | ** | * | н | |
| Methylene chloride | ND . | | ** | н | н | 11 | ** | , | |
| -Methyl-2-pentanone | ND u | | , | n | ** | n | w | n | |
| tyrene | ND ND | 2.00 | n | ., | | н | | | |
| .1,2,2-Tetrachloroethane | ND | 2.00 | •• | ** | * | | ** | * | |
| trachloroethene | ND | 2.00 | *1 | | Ħ | ** | | ** | |
| oluene | ND | 2.00 | | | ** | | , | | |
| .1.1-Trichloroethane | ND | 2.00 | ** | | н | н | , | | |
| .1.2-Trichloroethane | ND | 2.00 | ** | ** | н | ** | | n | |
| richloroethene | ND | 2.00 | | | ,, | * | ,, | # | |
| richlorofluoromethane | ND | 2.00 | | | ** | н | - | * | |
| /invl acetate | ND C | | ** | ** | | ** | ,, | | |
| /inyl acetate /inyl chloride | ND ND | 2.00 | | | | # | п | * | |
| Total Xylenes | ND | 4.00 | | | | ,, | • | | |
| | | | 07.3 | | · · | | | · - · | |
| Surrogate: Dibromofluoromethane | | 105 % | 87.3- | | | | | - | |
| Surrogate: 1,2-Dichloroethane-d4 | | 90.0 % | 85.2- | | ,, | " | " | | |
| Surrogate: Toluene-d8 | | 99.2 % | 92.3- | | " | | " | ** | |
| urrogate: 4-Bromofluorobenzene | | JE 92.8 % | 82.2- | 110 | " | " | " | • | |

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Andy Johnson



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

200 E. Randolph Suite 4700

Chicago IL, 60601

Project: Gary Development Landfill

Project Number: N/A

Project Manager: Lisa Graczyk

Reported:

05/21/02 08:54

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Analyte | Result | eporting Limit | | Dilution | Batch | Prepared | Analyzed | Method | Note |
|-----------------------------------|-------------------|-------------------|-------------|-----------|-----------|----------|---|-------------|------|
| GD-SW-0405-02 (B205134-03) Water | Sampled: 05/09/02 | 15:05 | Received: 0 | 5/10/02 (| 9:39 | | | · | Q |
| Acetone | CN DN | 10.0 | • | 1 | 2050228 | 05/13/02 | 05 13 02 | 5030B-8260B | |
| Benzene | ND | 2.00 | ** | н | " | ** | •• | H | |
| Bromodichloromethane | ND | 2.00 | ** | 0 | H | " | " | * | |
| Bromoform | ND | 2.00 | ** | ** | ** | " | *** | * | |
| Bromomethane | ND UI | 2.00 | * | ** | * | ** | ** | ** | |
| 2-Butanone | LN DN | 10.0 | ** | n | n | n | n | n | |
| Carbon disulfide | ND WJ | 2.00 | " | * | ** | ** | tt | " | |
| Carbon tetrachloride | ND W3 | 2.00 | | • | ** | •• | ** | | |
| Chlorobenzene | ND | 2.00 | " | ** | н | * | * | • | _ |
| Chlorodibromomethane | ND | 2.00 | * | н | 11 | n | " | н | |
| Chloroethane | CA DN | 2.00 | " | ** | ** | ** | II . | ** | |
| Chloroform | ND | 2.00 | • | ** | * | н | ** | • | |
| Chloromethane | ND U.1 | 2.00 | ** | ** | ** | н | •• | ** | |
| 1,1-Dichloroethane | ND | 2.00 | | •• | • | • | • | н | |
| 1.2-Dichloroethane | ND | 2.00 | • | | | ** | ** | + | |
| 1,1-Dichloroethene | ND | 2.00 | | ** | ** | н | ** | ** | |
| cis-1,2-Dichloroethene | ND | 2.00 | | ** | " | ** | • | н | |
| trans-1.2-Dichloroethene | ND | 2.00 | ** | * | ** | • | ** | • | |
| 1,2-Dichloropropane | ND | 2.00 | | ** | ** | ** | ** | • | |
| 1,3-Dichloropropene (cis + trans) | ND | 2.00 | | | 11 | ** | | * | |
| Ethylbenzene | ND | 2.00 | | * | | ** | | M | |
| 2-Hexanone | ND W | 10.0 | | • | • | •• | * | ** | |
| Methylene chloride | ND us | 2.00 | | et | н | н | ** | ** | |
| 4-Methyl-2-pentanone | ND u | 10.0 | | , ,, | ** | સ | ** | e | |
| Styrene | ND | 2.00 | | n | ** | n | n | 55 | |
| 1,1,2,2-Tetrachloroethane | ND | 2.00 | | ** | w | ** | n | * | |
| Tetrachloroethene | ND | 2.00 | | *1 | ** | ** | * | ri | • |
| Toluene | ND | 2.00 | | 11 | н | * | ** | н | |
| 1,1,1-Trichloroethane | ND | 2.00 | | ** | ,, | •• | ** | ** | |
| 1,1,2-Trichloroethane | ND | 2.00 | | | ** | n | н | * | |
| Trichloroethene | ND | 2.00 | | н | | | * | ** | |
| Trichlorofluoromethane | ND | 2.00 | | ., | н | • | ** | | |
| Vinyl acetate | בט מא | 2.00 | | ,, | | н | n | ** | |
| Vinyl chloride | ND ND | 2.00 | | •• | | # | 11 | • | |
| Total Xylenes | ND ND | 4.00 | | н | " | * | | | |
| | 140 | | | 110 | - · · · · | ,, | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | , H | |
| Surrogate: Dibromofluoromethane | | 106 % | | | | " | ,, | | |
| Surrogate: 1,2-Dichloroethane-d4 | | 89.2 % | | | . | " | " | ,, | |
| Surrogate: Toluene-d8 | | 101 % | - | | ** | " | ,, | | |
| Surrogate: 4-Bromofluorobenzene | HUE | 95.4 % | 82.2- | 110 | ** | " | ,, | •• | |

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

200 E. Randolph Suite 4700

Chicago IL. 60601

Project: Gary Development Landfill

Project Number: N/A

Project Manager: Lisa Graczyk

Reported:

05/21/02 08:54

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Analyte | Result | Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|-----------------------------------|--|-----------------|-------|----------|---------|----------|---|-------------|------|
| GD-SW-1213-03 (B205134-04) Water | Sampled: 05/09/02 15:30 Received: 05/10/02 09:39 | | | | | | | | |
| Acetone | ND WZ | 10.0 | ug/l | 1 | 2050228 | 05/13/02 | 05 13 02 | 5030B 8260B | |
| Benzene | ND | 2.00 | " | ** | * | ** | " | * | |
| Bromodichloromethane | ND | 2.00 | " | # | ** | ** | 7 | * | |
| Bromoform | ND | 2.00 | ** | •• | ** | • | ** | * | |
| Bromomethane | ND W | 2.00 | " | н | н | ** | • | ** | |
| 2-Butanone | CN DN | 10.0 | ** | " | ** | " | ** | н | |
| Carbon disulfide | CA DN | 2.00 | ** | * | ** | н | и | " | |
| Carbon tetrachloride | ND WS | 2.00 | " | • | ** | •• | * | * | |
| ^hlorobenzene | ND | 2.00 | " | •• | | ** | * | P1 | |
| _nlorodibromomethane | ND | 2.00 | II . | ** | * | • | •• | * | |
| Chloroethane | ND WZ | 2.00 | " | " | ** | n | ** | • | |
| Chloroform | ND | 2.00 | " | n | n | n | n | n | |
| Chloromethane | ZN DN | 2.00 | •• | • | * | ** | • | ** | |
| 1,1-Dichloroethane | ND | 2.00 | •• | • | • | • | ,, | * | |
| 1,2-Dichloroethane | ND | 2.00 | | * | н | * | ** | * | |
| 1.1-Dichloroethene | ND | 2.00 | " | # | # | | H | n | |
| cis-1,2-Dichloroethene | ND | 2.00 | | ,, | | н | н | # | |
| trans-1,2-Dichloroethene | ND | 2.00 | | • | ** | | * | * | |
| 1.2-Dichloropropane | ND | 2.00 | | | ** | ** | | | |
| 1.3-Dichloropropene (cis + trans) | ND | 2.00 | | | н | | m | | |
| Ethylbenzene | ND | 2.00 | | n | н | ,, | * | | |
| 2-Hexanone | ND W. | 10.0 | | ** | | н | | H | |
| 2-riexanone Methylene chloride | ND w | 2.00 | | n | n | " | ** | * | |
| 4-Methyl-2-pentanone | KN DN | 10.0 | | | | | | | |
| | ND ND | 2.00 | | # | ** | ** | | rt . | |
| Styrene 1,1,2,2-Tetrachloroethane | | | | # | | ** | ** | н | |
| | ND ND | 2.00 | | | | | | * | |
| trachloroethene | ND | 2.00 | | н | ,, | H | | | |
| Toluene | ND | 2.00 | | | | | | | |
| 1,1,1-Trichloroethane | ND | 2.00 | | | | | | | |
| 1,1,2-Trichloroethane | ND | 2.00 | | * | | | | | |
| Trichloroethene | ND | 2.00 | | * | , | | | | |
| Trichlorofluoromethane | ND | 2.00 | | | , | | | " | |
| Vinyl acetate | ND WY | 2.00 | | n | - | | | | |
| Vinyl chloride | ND | 2.00 | | | | | | # | |
| Total Xylenes | ND | 4.00 | | | | • | ** | H | |
| Surragate: Dibromofluoromethane | | 106 % | 87.3 | -118 | ** | " | " | " | |
| Surrogate: 1,2-Dichloroethane-d4 | | 88.2 % | | | " | " | " | • | |
| Surrogate: Toluene-d8 | | 97.0 % | 92.3 | -110 | " | ** | ,, | * | |
| Surrogate: 4-Bromofluorobenzene | | 93.4 % | 82.2 | | " | " | * | * | |
| | HUE 102- | -b ₂ | | | | | | | |

Great Lakes Analytical

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Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A

Reported: 05/21/02 08:54

Chicago IL, 60601

Project Manager: Lisa Graczyk

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| ļ | | Reporting | | | | | | | |
|--|--|-----------|-------|----------------|---------|----------|----------|-------------|---------------|
| Analyte | Result | Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
| GD-SW-0809-04 (B205134-05) Water | Sampled: 05/09/02 16:00 Received: 05/10/02 09:39 | | | | | | | | QC |
| Acetone | ND U.J | 10.0 | ug l | l | 2050228 | 05/13/02 | 05.13 02 | 5030B 8260B | |
| Benzene | ND | 2.00 | " | ** | н | " | •• | ** | |
| Bromodichloromethane | ND | 2.00 | n | н | . " | ** | ** | • | |
| Bromoform | ND | 2.00 | ** | ** | •• | • | ** | 11 | |
| Bromomethane | ND WJ | 2.00 | * | * | ** | ** | ** | 11 | |
| 2-Butanone | ND WJ | 10.0 | н | " | " | ** | ** | ** | |
| Carbon disulfide | ND W | 2.00 | ** | ** | * | ** | ** | ** | |
| Carbon tetrachloride | ND WS | 2.00 | | •• | ** | ** | ** | Ħ | |
| Chlorobenzene | ND | 2.00 | ** | | ** | • | | ** | $\overline{}$ |
| Chlorodibromomethane | ND | 2.00 | " | | " | H | ** | ** | |
| Chloroethane | ND US | 2.00 | ** | | ** | •• | " | • | |
| Chloroform | ND ND | 2.00 | | ,, | " | | ** | , и | |
| Chloromethane | ND NO | 2.00 | ** | ** | ** | ** | •• | н | |
| 1,1-Dichloroethane | ND | 2.00 | ** | * | n | u | ** | н | |
| 1,2-Dichloroethane | ND | 2.00 | | n | ** | 41 | ** | ** | |
| 1,1-Dichloroethene | ND | 2.00 | ** | * | ** | " | ** | ** | |
| cis-1,2-Dichloroethene | ND | 2.00 | | 11 | n | n | ** | * | |
| trans-1,2-Dichloroethene | ND | 2.00 | | •• | | ** | ** | | |
| 1.2-Dichloropropane | ND | 2.00 | •• | ** | | | ** | n | |
| 1,3-Dichloropropene (cis + trans) | ND | 2.00 | | ** | ,, | * | ** | •• | |
| Ethylbenzene | ND | 2.00 | . " | ** | н | | • | ** | |
| 2-Hexanone | LN DN | 10.0 | | ** | •• | ** | •• | | |
| Methylene chloride | ND W | 2.00 | 11 | | • | • | n | н | |
| 4-Methyl-2-pentanone | ND US | 10.0 | н | • | ** | * | •• | | |
| Styrene | ND | 2.00 | | н | n | H | • | " | |
| 1,1,2,2-Tetrachloroethane | ND | 2.00 | | ** | ** | ** | " | et | |
| Tetrachloroethene | ND | 2.00 | | " | | ** | ,, | n | _ |
| Toluene | ND | 2.00 | | | | ** | 11 | * | |
| 1.1.1-Trichloroethane | ND | 2.00 | | ** | | * | н | • | |
| 1,1,2-Trichloroethane | ND | 2.00 | | H | н | ** | •• | • | |
| Trichloroethene | ND | 2.00 | | ** | n | H | ** | | |
| Trichlorofluoromethane | ND | 2.00 | | ** | ** | •• | ** | • | |
| Vinyl acetate | EN DN | 2.00 | | 10 | • | | ** | " | |
| Vinyl chloride | ND | 2.00 | | | • | | ** | | |
| Total Xylenes | ND | 4.00 | | ** | , | н | 11 | | |
| Surrogate: Dibromofluoromethane | | 107 % | | 3-118 | ,, | ** | " | • | |
| Surrogate: 1,2-Dichloroethane-d4 | | 89.4 % | | 3-116 2-121 | # | ** | ** | ** | |
| Surrogate: T,2-Dictioroethane-a4 Surrogate: Toluene-d8 | | 96.2 % | | 2-121 3-110 | ,, | ** | ** | ** | |
| • | | 94.4 % | | 3-110 2-110 | ,, | ,, | ,, | ** | |
| Surrogate: 4-Bromofluorobenzene | | 94.4 % | o 84. | 2-110 | | | | | |

127° 02

Great Lakes Analytical

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

200 E. Randolph Suite 4700

Chicago IL, 60601

Project: Gary Development Landfill

Project Number: N/A

Project Manager: Lisa Graczyk

Reported:

05/21/02 08:54

Volatile Organic Compounds by EPA Method 8260B

Great Lakes Analytical

| Analyte | Result | eporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|--|----------------|-------------------|------------|----------|------------|-------------|----------|-------------|------|
| Trip Blank - TBI/TB2 (B205134-06) Water | Sampled: 05/6 | 09/02 00: | :00 Receiv | ed: 05/1 | 0/02 09:39 | | | | Q |
| Acetone | ND UJ | 10.0 | ug/l | 1 | 2050228 | 05/13/02 | 05 13 02 | 5030B 8260B | |
| Benzene | ND | 2.00 | " | ,, | ** | | ,, | • | |
| Bromodichloromethane | ND | 2.00 | ** | n | . * | | ** | ** | |
| Bromoform | ND | 2.00 | ** | ** | ** | | ** | ** | |
| Bromomethane | ND WJ | 2.00 | н | | н | | н | ** | |
| 2-Butanone | CN DN | 10.0 | н | н | ** | n. | ,, | ** | |
| Carbon disulfide | ND WS | 2.00 | 11 | • | ** | ** | ** | ** | |
| Carbon tetrachloride | ND W3 | 2.00 | ** | " | ** | •• | • | | |
| i lorobenzene | ND | 2.00 | н | •• | ** | • | ** | • | |
| lorodibromomethane | ND | 2.00 | n | | " | | | # | |
| Chloroethane | ND WJ | 2.00 | | н | н | H | • | ** | |
| Chloroform | ND | 2.00 | n | " | ** | | •• | ** | |
| Chloromethane | NDUJ | 2.00 | | | | * | ** | ** | |
| 1.1-Dichloroethane | ND | 2.00 | ** | ** | ** | * | u | | |
| 1.2-Dichloroethane | ND | 2.00 | •• | | н | ** | •• | u | |
| 1.1-Dichloroethene | ND | 2.00 | * | н | н | tı | ** | ** | |
| cis-1,2-Dichloroethene | ND | 2.00 | ,, | •• | " | ** | ** | • | |
| trans-1,2-Dichloroethene | ND | 2.00 | ,, | | | h | | " | |
| 1,2-Dichloropropane | ND | 2.00 | ,, | | ** | ** | •• | ,, | |
| 1,3-Dichloropropene (cis + trans) | ND | 2.00 | ** | •• | | •• | ,, | | |
| Ethylbenzene | ND | 2.00 | ** | ** | ** | ** | 11 | n | |
| 2-Hexanone | ND WS | 10.0 | | н | н | н | •• | •• | |
| Methylene chloride | ND WJ | 2.00 | | ** | н | 19 | | | |
| 4-Methyl-2-pentanone | ND WY | 10.0 | ** | " | ** | ** | ** | | |
| Styrene | ND ND | 2.00 | ,, | ** | ** | ** | * | и | |
| 1,1,2,2-Tetrachloroethane | ND | 2.00 | | | ** | * | | ** | |
| rachloroethene | ND | 2.00 | | | ., | ** | н | ,, | |
| Toluene | ND ND | 2.00 | ** | | H | н | ** | ** | |
| 1.1.1-Trichloroethane | ND | 2.00 | | ** | н | н | 11 | n | |
| 1.1.2-Trichloroethane | ND | 2.00 | 11 | н | n | ** | ** | | |
| Trichloroethene | ND | 2.00 | н | ., | | ** | ** | * | |
| Trichlorofluoromethane | ND | 2.00 | 11 | ** | ** | ,, | ** | ** | |
| Vinyl acetate | לא מא לא מא | 2.00 | ** | ** | | ** | | * | |
| Vinyl acetate Vinyl chloride | ND | 2.00 | | m | | | н | н | |
| Total Xylenes | ND | 4.00 | н | | | • | ,, | # | |
| the first of the second of the | | | | | | ,, | | | |
| Surrogate: Dibromofluoromethane | | 101% | 87.3-1. | | ,, | " " | " | ,, | |
| Surrogate: 1,2-Dichloroethane-d4 | | 94.0 % | 85.2-1 | | | ,, | | " | |
| Surrogate: Toluene-d8 | | 98.2 % | 92.3-1. | | , | " | | п | |
| Surrogate: 4-Bromofluorobenzene | | 92.4 % | 82.2-1 | 10 | ,, | ,, | " | * | |

Great Lakes Analytical

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Andy Johnson



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Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A

Reported:

Project Manager: Lisa Graczyk

05/21/02 08:54

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|------------------------------------|----------------|--------------------|----------|--------------|---------|----------|----------|----------|------|
| GD-SW-0203-01 (B205134-01) Water | Sampled: 05/0 | 9/02 14:40 I | Received | : 05/10/02 (| 09:39 | | | | |
| PCB-1016 | ND | 0.500 | ugl | l | 2050263 | 05/14/02 | 05 17 02 | EPA 8082 | |
| PCB-1221 | ND | 0.500 | * | ** | ** | * | ** | н | |
| PCB-1232 | ND | 0.500 | ** | ** | н | ** | •• | " | |
| PCB-1242 | ND | 0.500 | " | ** | ** | ** | ** | • | |
| PCB-1248 | ND | 0.500 | ** | ** | * | ** | | •• | |
| PCB-1254 | ND | 0.500 | ** | ** | * | • | •• | ** | |
| PCB-1260 | ND | 0.500 | ** | н | ** | " | ** | н | |
| Surrogate: Tetrachloro-meta-xylene | | 47.1 % | 10- | -110 | " | " | " | " | |
| Surrogate: Decachlorobiphenyl | | 28.4 % | 10- | -114 | * | " | " | # | ~ |
| GD-SW-0203-01D (B205134-02) Water | r Sampled: 05/ | 09/02 13:40 | Receive | d: 05/10/0 | 2 09:39 | | | | |
| PCB-1016 | ND | 0.500 | ug I | ı | 2050263 | 05 14/02 | 05:17:02 | EPA 8082 | |
| PCB-1221 | ND | 0.500 | " | ** | | н | ** | ** | |
| PCB-1232 | ND | 0.500 | | 11 | n | " | | ** | |
| PCB-1242 | ND | 0.500 | ** | • | ** | ** | " | | |
| PCB-1248 | ND | 0.500 | | ** | ** | * | ** | | |
| PCB-1254 | ND | 0.500 | ** | 11 | н | ** | ** | н | |
| PCB-1260 | ND | 0.500 | 0 | ** | " | ** | ** | ** | |
| Surrogate: Tetrachloro-meta-xylene | | 44.3 % | 10- | -110 | ** | | ,, | n | |
| Surrogate: Decachlorobiphenyl | | 20.3 % | | -114 | " | " | " | H | |
| GD-SW-0405-02 (B205134-03) Water | Sampled: 05/0 | 9/02 15:05 | Received | : 05/10/02 | 09:39 | | | _ | |
| PCB-1016 | ND | 0.500 | ug/1 | 1 | 2050263 | 05.14/02 | 05/17/02 | EPA 8082 | |
| PCB-1221 | ND | 0.500 | " | ** | ** | | •• | • | |
| PCB-1232 | ND | 0.500 | ,, | | н | " | " | ** | |
| PCB-1242 | ND | 0.500 | " | ,, | 11 | н | ** | • | _ |
| PCB-1248 | ND | 0.500 | | ** | n | n | *1 | | ` |
| PCB-1254 | ND | 0.500 | ** | 1) | H | * | * | н | |
| PCB-1260 | ND | 0.500 | ,, | ** | 77. | н | • | * | |
| Surrogate: Tetrachloro-meta-xylene | | 39.4 % | 10 | -110 | " | ,, | | ** | = ** |
| Surrogate: Decachlorobiphenyl | | 44.5 % | | -114 | ,, | ** | ,, | " | |

Great Lakes Analytical

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Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Polychlorinated Biphenyls by EPA Method 8082

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|------------------------------------|----------------|--------------------|-----------|------------|---------|----------|----------|----------|-------|
| GD-SW-1213-03 (B205134-04) Water | Sampled: 05/09 | /02 15:30 | Received: | 05/10/02 (| 9:39 | | | | |
| PCB-1016 | ND | 0.500 | ug/l | ı | 2050263 | 05/14/02 | 05 17/02 | EPA 8082 | |
| PCB-1221 | ND | 0.500 | ** | * | ** | | •• | • | |
| PCB-1232 | ND | 0.500 | " | " | • | ** | •• | • | |
| PCB-1242 | ND | 0.500 | p | ** | ** | ** | ** | ** | |
| PCB-1248 | ND | 0.500 | • | ** | | ** | " | n | |
| PCB-1254 | ND | 0.500 | n / | ** | ** | " | ** | • | |
| PCB-1260 | ND | 0.500 | •• | ** | ** | ** | ** | • | |
| Surrogate: Tetrachloro-meta-xylene | | 33.4 % | 10- | 110 | ,, | " | ,, | " | |
| rrogate: Decachlorobiphenyl | | 27.8 % | 10- | 114 | " | " | ,, | " | |
| GD-SW-0809-04 (B205134-05) Water | Sampled: 05/09 | /02 16:00 | Received: | 05/10/02 (| 9:39 | | | | |
| PCB-1016 | ND | 0.500 | ug/l | 1 | 2050263 | 05-14-02 | 05 17 02 | EPA 8082 | |
| PCB-1221 | ND | 0.500 | н | ** | " | н | D | н | |
| PCB-1232 | ND | 0.500 | ** | ** | ** | | ** | • | |
| PCB-1242 | ND | 0.500 | •• | ** | * | • | ** | * | |
| PCB-1248 | ND | 0.500 | * | н | ** | ** | 11 | н | |
| PCB-1254 | ND | 0.500 | H | " | 11 | н | ** | ** | |
| PCB-1260 | ND | 0.500 | | • | ** | • | ** | | |
| Surrogate: Tetrachloro-meta-xylene | | 43.3 % | 10- | 110 | n | * | " | н | |
| Surrogate: Decachlorobiphenyl | | 49.6 % | 10- | 114 | | ** | ** | M | |

Great Lakes Analytical

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Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | eporting Limit | | Dilution | Batch | Prepared | Analyzed | Method | Note |
|--------------------------------------|-------------------|-------------------|-----------|------------|---------|----------|----------|-----------|------|
| GD-SW-0203-01 (B205134-01) Water | Sampled: 05/09/02 | 14:40 | Received: | 05/10/02 0 | 9:39 | | | | Q |
| Acenaphthene | ND MZ | 2.00 | ug/l | ı | 2050219 | 05/13/02 | 05 17:02 | EPA 8270C | |
| Acenaphthylene | ND \ | 2.00 | • | " | н | " | •• | , | |
| Aniline | ND \ | 2.00 | ** | | ** | ** | ** | n | |
| Anthracene | · ND | 2.00 | ** | | • | | ** | • | |
| Benzoic acid | ND | 10.0 | • | " | * | " | n | * | |
| Benz (a) anthracene | ND | 2.00 | ** | н | ** | ** | •• | " | |
| Benzo (a) pyrene | ND | 2.00 | ** | n | n | ** | ** | n | |
| Benzo (b) fluoranthene | ND | 2.00 | ** | * | ** | n | н | ** | |
| Benzo (ghi) perylene | ND \ | 2.00 | ** | н | н | " | ,, | * | _ |
| Benzo (k) fluoranthene | ND | 2.00 | " | " | • | 11 | | н | |
| Benzyl alcohol | ND \ | 2.00 | " | ** | • | ** | | " | |
| Bis(2-chloroethoxy)methane | ND | 2.00 | " | ** | * | ** | " | • | |
| Bis(2-chloroethyl)ether | ND | 2.00 | н | 11 | ** | 11 | •• | * | |
| Bis(2-chloroisopropyl)ether | ND | 2.00 | " | ** | ** | | н | ** | |
| Bis(2-ethylhexyl)phthalate | ND | 10.0 | ** | | ** | •• | " | ** | |
| 4-Bromophenyl phenyl ether | ND | 2.00 | H | ** | a | н | n | * | |
| Butyl benzyl phthalate | ND | 2.00 | n | ** | ** | ** | n | n | |
| 4-Chloroaniline | ND | 2.00 | •• | # | 11 | | н | • | |
| 4-Chloro-3-methylphenol | ND | 2.00 | | н | н | н | •• | | |
| 2-Chloronaphthalene | ND | 2.00 | " | ** | ** | ** | ** | * | |
| 2-Chlorophenol | ND | 2.00 | ** | ** | ** | | н | n | |
| 4-Chlorophenyl phenyl ether | ND | 2.00 | • | ** | ** | " | ** | ** | |
| Chrysene | ND | 2.00 | ** | | н | н | | ** | |
| Dibenz (a,h) anthracene | ND | 2.00 | " | | ** | ** | ** | ** | |
| Dibenzofuran | ND | 2.00 | | ,, | | * | | н | |
| 1.2-Dichlorobenzene | ND | 2.00 | | . н | ** | ** | ,, | ** | |
| 1,3-Dichlorobenzene | ND | 2.00 | | n | n | * | ** | n | , |
| 1,4-Dichlorobenzene | ND | 2.00 | | 11 | ,, | u | ** | | |
| 3,3'-Dichlorobenzidine | ND | 10.0 | | ., | ** | ** | | • | |
| 2,4-Dichlorophenol | ND | 2.00 | | ,, | ., | | • | н | |
| • | ND | 2.00 | | | | • | " | * | |
| Diethyl phthalate 2,4-Dimethylphenol | ND | 2.00 | | | | | | • | |
| | 1 | 2.00 | | ** | ** | ,, | | н | |
| Dimethyl phthalate | ND | | | | ** | | ,, | 11 | |
| Di-n-butyl phthalate | ND | 10.0 | | | •• | •• | и | | |
| 4,6-Dinitro-2-methylphenol | ND | 10.0 | | n | ** | " | ,, | | |
| 2,4-Dinitrophenol | ND | 10.0 | | | ·· | | ,, | | |
| 2,4-Dinitrotoluene | ND | 2.00 | | | n | ** | ** | ** | |
| 2.6-Dinitrotoluene | ND | 2.00 | | | | | • | ** | |
| Di-n-octyl phthalate | ND | 2.00 | | ,, | | | | | |
| Fluoranthene | ND | 2.00 | | | | | " | | |
| Fluorene | ND 👈 | 2.00 | | ** | ** | н | | " | |
| Hexachlorobenzene | CN DN | 2.00 | ** | ** | * | * | | п | |

Great Lakes Analytical

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Andy Johnson



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Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|-------------------------|--------------------|--------------------------|-----------------------|---------|---|----------|-----------|-------|
| GD-SW-0203-01 (B205134-01) Water | Sampled: 05/09/02 14:40 | | Received: 05/10/02 09:39 | | | | | | QC |
| Hexachlorobutadiene | ND V | 2.00 | ug/l | 1 | 2050219 | 05/13/02 | 05/17/02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND) | 2.00 | " | ** | ** | * | •• | ** | |
| Hexachloroethane | ND | 2.00 | ** | " . | | | •• | " | |
| Indeno (1,2,3-cd) pyrene | ND | 2.00 | * | * | * | • | •• | • | |
| Isophorone | ND | 2.00 | | n | | +1 | •• | n | |
| 2-Methylnaphthalene | ND | 2.00 | H | н | н | ** | ** | " | |
| o-Cresol | ND | 2.00 | n | n | " | н | " | n | |
| m,p-Cresols | ND | 2.00 | •• | •• | | ** | | * | |
| phthalene | ND | 2.00 | ** | * | ** | | •• | * | |
| Nitroaniline | ND | 10.0 | | ** | ** | ** | ** | * | |
| 3-Nitroaniline | ND | 10.0 | 11 | H | ** | ** | " | n | |
| 4-Nitroaniline | ND | 10.0 | н | " | | ** | •• | n | |
| Nitrobenzene | ND | 2.00 | | ** | ** | ** | • | •• | |
| 2-Nitrophenol | ND | 2.00 | • | ** | | ** | ** | н | |
| 4-Nitrophenol | ND | 10.0 | | Ħ | " | ** | н | | |
| N-Nitrosodi-n-propylamine | ND | 2.00 | ** | н | H | н | •• | P | |
| N-Nitrosodiphenylamine | ND | 2.00 | n | n | ** | n | w | | |
| Pentachlorophenol | ND | 10.0 | | ** | * | ** | H | • | |
| Phenanthrene | ND | 2.00 | ** | ** | * | * | n | n | |
| Phenol | ND | 2.00 | | | | н | •• | ** | |
| Pyrene | ND | 2.00 | | н | ĸ | ** | #1 | ** | |
| 1,2,4-Trichlorobenzene | ND | 2.00 | | | н | ** | ** | ** | |
| 2,4,5-Trichlorophenol | ND J | 10.0 | | • | | ** | ,, | | |
| 2,4,6-Trichlorophenol | ND W | | | ** | • | * | 10 | ** | |
| Surrogate: 2-Fluorophenol | | % | | -110 | ** | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | " | " | |
| Surrogate: Phenol-d6 | | . % | | -110 -110 | ,, | ,, | ,, | * | |
| rogate: Nitrobenzene-d5 | | . 70 | | -110 - -110 | ,, | ,, | " | * | |
| Surrogate: 2-Fluorobiphenyl | | 0.0599 % | | 1-110 1-110 | ,, | ,, | ,, | * | |
| Surrogate: 2.4,6-Tribromophenol | l | 0.0399 /n % | | -110 | " | ** | 51 | ** | |
| Surrogate: p-Terphenyl-d14 | | 0.0599 % | • • | -110 -121 | ,, | ,, | ,, | ,, | |

11 7 - 82

Great Lakes Analytical

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Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|-----------------------------------|-----------------|--------------------|--------------------------|----------|---------|----------|----------|-----------|-------|
| GD-SW-0203-01D (B205134-02) Water | Sampled: 05/09/ | 02 13:40 | Received: 05/10/02 09:39 | | | | | | QC.02 |
| Acenaphthene | ND | 2.00 | ug/l | 1 | 2050219 | 05 13 02 | 05/17/02 | EPA 8270C | |
| Acenaphthylene | ND | 2.00 | 11 | ** | n | | " | ** | |
| Aniline | KD UZ | 2.00 | 1* | ** | ** | H | ** | ** | |
| Anthracene | ND | 2.00 | ** | ** | н | 11 | ** | " | |
| Benzoic acid | NDUJ | 10.0 | 11 | * | ** | •• | ** | ** | |
| Benz (a) anthracene | ND | 2.00 | ** | . " | ** | | 11 | * | |
| Benzo (a) pyrene | NDUJ | 2.00 | ** | * | ** | • | • | " | |
| Benzo (b) fluoranthene | NDLY | 2.00 | ** | " | " | 11 | • | * | |
| Benzo (ghi) perylene | NDNS | 2.00 | 11 | n | ** | • | " | ** | _ |
| Benzo (k) fluoranthene | CNDN | 2.00 | ** | ** | " | ** | ** | • | |
| Benzyl alcohol | ND . | 2.00 | " | * | н | n | ** | • | |
| Bis(2-chloroethoxy)methane | ND | 2.00 | " | н | | n | " | •• | |
| Bis(2-chloroethyl)ether | ND | 2.00 | ** * | •• | | ** | " | * | |
| 3is(2-chloroisopropyl)ether | ND | 2.00 | * | ** | | ** | ** | n | |
| Bis(2-ethylhexyl)phthalate | ND | 10.0 | ** | n n | ** | " | •• | | |
| l-Bromophenyl phenyl ether | ND | 2.00 | | " | " | ** | ** | • | |
| Butyl benzyl phthalate | ND | 2.00 | *1 | • | ,, | * | н | • | |
| I-Chloroaniline | ND | 2.00 | n | " | " | n | ** | n | |
| -Chloro-3-methylphenol | ND UJ | 2.00 | н | " | " | * | * | • | |
| 2-Chloronaphthalene | ND | 2.00 | ** | ** | ** | n | н | • | |
| 2-Chlorophenol | EN DN | 2.00 | ** | " | ** | " | ** | • | |
| -Chlorophenyl phenyl ether | ND | 2.00 | ** | u | ** | H | ** | ** | |
| Chrysene | ND | 2.00 | " | ** | | ** | | # | |
| Dibenz (a,h) anthracene | KNDU | 2.00 | ** | " | * | ŧı | ** | " | |
| Dibenzofuran | ND | 2.00 | ** | ** | ** | ** | ** | ** | |
| ,2-Dichlorobenzene | ND | 2.00 | n | n | n | ** | ** | ** | |
| ,3-Dichlorobenzene | ND | 2.00 | n | n | ** | n | ** | 11 | |
| ,4-Dichlorobenzene | ND | 2.00 | ** | ** | " | ** | n | * | |
| 3,3'-Dichlorobenzidine | ND | 10.0 | | н | ** | ** | ** | w | |
| 2,4-Dichlorophenol | NDUZ | 2.00 | u u | * | " | н | " | • | |
| Diethyl phthalate | ND | 2.00 | | | ** | ** | ** | н | |
| 2,4-Dimethylphenol | ND W.3 | 2.00 | ** | * | • | ** | •• | ** | |
| Dimethyl phthalate | ND | 2.00 | н | ** | ** | н | н | • | |
| Di-n-butyl phthalate | ND | 10.0 | •• | * | н | ** | | ** | |
| 1,6-Dinitro-2-methylphenol | CNDN | 10.0 | • | | | | | * | |
| 2,4-Dinitrophenol | ND WO | 10.0 | | | | | • | 11 | |
| 2,4-Dinitrotoluene | ND | 2.00 | н | * | • | •• | н | | |
| 2.6-Dinitrotoluene | ND | 2.00 | | * | н | н | " | | |
| Di-n-octyl phthalate | T N DN | 2.00 | ,, | | | | | * | |
| Fluoranthene | ND ND | 2.00 | н | ** | | | ** | н | |
| Fluorene | ND ND | 2.00 | ** | ,, | ** | ** | *, | " | |
| Hexachlorobenzene | ND ND | 2.00 | * | ,, | ,, | n. | ** | n | |

Great Lakes Analytical

HUE 11 Jun 82 The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A

Reported:

Chicago IL, 60601 Project Manager: Lisa Graczyk

05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | eporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note: |
|-----------------------------------|------------------|-------------------|-----------|--------------------------|---------|----------|----------|-----------|-------|
| GD-SW-0203-01D (B205134-02) Water | Sampled: 05/09/0 | 2 13:40 | Received: | Received: 05/10/02 09:39 | | | | | QC.02 |
| Hexachlorobutadiene | ND | 2.00 | ug/l | 1 | 2050219 | 05/13/02 | 05/17 02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 2.00 | * | ** | ** | n | • | ** | |
| Hexachloroethane | ND | 2.00 | • | ** | ** | n | н | ** | |
| Indeno (1,2,3-cd) pyrene | ND MJ | 2.00 | * | ** | ** | * | n | ** | |
| Isophorone | ND | 2.00 | и | ** | ** | ** | ** | * | |
| 2-Methylnaphthalene | ND | 2.00 | 11 | Ħ | " | ** | ** | Ħ | |
| o-Cresol | ND U J | 2.00 | ** | • | •• | 11 | ** | ** | |
| m,p-Cresols | ND UJ | 2.00 | * | ** | n | tt | н | ** | |
| phthalene | ND | 2.00 | | | • | • | •• | ** | |
| Nitroaniline | ND | 10.0 | n | | н | | • | • | |
| 3-Nitroaniline | ND | 10.0 | . 11 | ** | •• | ** | н | ** | |
| 4-Nitroaniline | ND | 10.0 | 71 | n | ** | ** | n | ** | |
| Nitrobenzene | ND | 2.00 | ** | ** | ** | • | • | ** | |
| 2-Nitrophenol | ND WJ | 2.00 | ** | * | n | ** | n | H | |
| 4-Nitrophenol | ND MS | 10.0 | п | ** | ** | н | •• | " | |
| N-Nitrosodi-n-propylamine | ND | 2.00 | 11 | ** | | Ħ | | н | |
| N-Nitrosodiphenylamine | ND | 2.00 | ** | * | • | ** | • | ** | |
| Pentachlorophenol | ND MJ | 10.0 | ** | ** | н | H | * | H | |
| Phenanthrene | ND | 2.00 | ** | n | n | n | n | ** | |
| Phenol | ND U. | 2.00 | 11 | н | | * | " | н | |
| Pyrene | ND | 2.00 | ** | ** | * | ** | " | ** | |
| 1,2,4-Trichlorobenzene | ND | 2.00 | ** | ** | | * | * | • | |
| 2,4,5-Trichlorophenol | ND W | 10.0 | | * | н | н | н | • | |
| 2,4,6-Trichlorophenol | ND ND | 2.00 | н | н | * | 11 | ** | r | |
| Surrogate: 2-Fluorophenol | - | 12.4 % | 10-11 | 0 | " | • | * | " | |
| Surrogate: Phenol-d6 | | 8.39 % | 10-11 | 0 | " | " | ,, | r | |
| rogate: Nitrobenzene-d5 | | 41.4 % | 31.4-1 | 10 | n | H | n | n | |
| Surrogate: 2-Fluorobiphenyl | | 46.5 % | 29.1-1 | | ** | " | " | ** | |
| Surrogate: 2.4.6-Tribromophenol | | 58.9 % | 10-11 | 0 | ,, | " | ,, | ,, | |
| Surrogate: p-Terphenyl-d14 | | 84.5 % | 10-12 | 21 | " | ,, | " | ,, | |
| <i>G</i> , , , , | 1106 | | | | | | | | |

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Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | eporting Limit | | Dilution | Batch | Prepared | Analyzed | Method | Note |
|----------------------------------|--------------------|-------------------|----------|------------|---------|----------|----------|-----------|------|
| GD-SW-0405-02 (B205134-03) Water | Sampled: 05/09/02 | 15:05 | Received | 05/10/02 0 | 9:39 | | | | QC |
| Acenaphthene | ND | 2.00 | ug/l | 1 | 2050219 | 05/13/02 | 05 17 02 | EPA 8270C | |
| Acenaphthylene | ND | 2.00 | • | • | ** | ** | ,, | • | |
| Aniline | C N DN | 2.00 | ** | ** | * | " | ** | •• | |
| Anthracene | ND | 2.00 | н | " | 11 | н | | н | |
| Benzoic acid | ND \dd J | 10.0 | ** | | 17 | ** | | ** | |
| Benz (a) anthracene | ND | 2.00 | " | • | ** | ** | ** | * | |
| Benzo (a) pyrene | ND | 2.00 | " | n | " | ** | ** | н | |
| Benzo (b) fluoranthene | ND | 2.00 | ** | ., | * | " | •• | ** | |
| Benzo (ghi) perylene | ND | 2.00 | ** | , | r | ** | 11 | •• | _ |
| Benzo (k) fluoranthene | ND | 2.00 | ** | ** | ** | ** | | • | |
| Benzyl alcohol | ND | 2.00 | н | н | , | * | " | ** | |
| Bis(2-chloroethoxy)methane | ND | 2.00 | | " | ,, | " | ** | ** | |
| Bis(2-chloroethyl)ether | ND | 2.00 | ** | ** | | | ** | ** | |
| Bis(2-chloroisopropyl)ether | ND | 2.00 | ii | ш | ** | н | ** | • | |
| Bis(2-ethylhexyl)phthalate | ND | 10.0 | " | | ** | ** | ** | # | |
| 4-Bromophenyl phenyl ether | ND | 2.00 | ** | * | # | | ** | | |
| Butyl benzyl phthalate | ND | 2.00 | ** | u | ** | | ** | | |
| 4-Chloroaniline | ND | 2.00 | н | ** | | ** | ** | н | |
| 4-Chloro-3-methylphenol | | 2.00 | " | ** | ** | ** | ** | | |
| | LU DN DN | 2.00 | n | ** | ,, | ** | ** | ** | |
| 2-Chloronaphthalene | ND WS | | n | ,, | » | n | ,, | * | |
| 2-Chlorophenol | | 2.00 | | ,, | ,, | ,, | n | n | |
| 4-Chlorophenyl phenyl ether | ND | 2.00 | | ,, | ,, | * | | " | |
| Chrysene | ND | 2.00 | | | " | ,, | ,, | | |
| Dibenz (a,h) anthracene | ND | 2.00 | | н | | | | | |
| Dibenzofuran | ND | 2.00 | | ** | 11 | n | ** | * | |
| 1,2-Dichlorobenzene | ND | 2.00 | | " | H | ** | н | ** | |
| 1,3-Dichlorobenzene | ND | 2.00 | | ** | * | • | ** | ** | • |
| 1,4-Dichlorobenzene | ND | 2.00 | | н | * | • | * | n | |
| 3,3'-Dichlorobenzidine | ND | 10.0 | | ** | н | 11 | ** | H | |
| 2.4-Dichlorophenol | ND MJ | 2.00 | •• | ** | •• | " | " | " | |
| Diethyl phthalate | ND | 2.00 | " | ** | * | • | н | | |
| 2,4-Dimethylphenol | NDWJ | 2.00 | н | н | | | " | * | |
| Dimethyl phthalate | ND | 2.00 | * | ** | н | Ħ | ** | * | |
| Di-n-butyl phthalate | ND | 10.0 | ** | ** | | • | " | | |
| 4,6-Dinitro-2-methylphenol | C~GN | 10.0 | ** | н | • | ** | " | ** | |
| 2,4-Dinitrophenol | CM DN | 10.0 | н . | " | n | н | ** | , | |
| 2,4-Dinitrotoluene | ND | 2.00 | | | * | # | # | ** | |
| 2.6-Dinitrotoluene | ND | 2.00 | | • | ** | •• | н | | |
| Di-n-octyl phthalate | ND | 2.00 | | 11 | n | ** | H | • | |
| Fluoranthene | ND | 2.00 | | tı | • | * | | | |
| Fluorene | ND | 2.00 | | ** | n | " | | # | |
| Hexachlorobenzene | ND | 2.00 | | _ | _ | | ** | ** | |

Great Lakes Analytical

4UE 11 Junp 2 The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Project: Gary Development Landfill

200 E. Randolph Suite 4700 Chicago IL, 60601

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | leporting Limit | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|-------------------|--------------------|-----------|------------|---------|----------|----------|-----------|-------|
| GD-SW-0405-02 (B205134-03) Water | Sampled: 05/09/02 | 15:05 | Received: | 05/10/02 (| 9:39 | | | | QC |
| Hexachlorobutadiene | ND | 2.00 | ug/l | 1 | 2050219 | 05/13/02 | 05 17/02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 2.00 | " | " | * | * | ** | | |
| Hexachloroethane | ND | 2.00 | ** | | ** | ** | • | ** | |
| Indeno (1,2,3-cd) pyrene | ND | 2.00 | ** | ** | - | | ** | • | |
| Isophorone | ND | 2.00 | ** | * | н | •• | • | ** | |
| 2-Methylnaphthalene | ND | 2.00 | ** | * | n | " | ** | ** | |
| o-Cresol | NDWJ | 2.00 | ** | ** | * | н | ** | * | |
| m,p-Cresols | NDWJ | 2.00 | ** | " | ** | н | ** | | |
| ohthalene | ND | 2.00 | | ** | | • | •• | н | |
| -Nitroaniline | ND | 10.0 | н | * | * | ** | • | | |
| 3-Nitroaniline | ND | 10.0 | 15 | ** | ** | ** | ** | * | |
| 4-Nitroaniline | ND | 10.0 | ** | ** | " | • | | | |
| Nitrobenzene | ND | 2.00 | • | | H | n | ** | | |
| 2-Nitrophenol | LM QN | 2.00 | ** | * | н | ** | 11 | | |
| 4-Nitrophenol | EN DN | 10.0 | • | | •• | н , | ** | • | |
| N-Nitrosodi-n-propylamine | ND | 2.00 | * | ** | • | ** | • | • | |
| N-Nitrosodiphenylamine | ND | 2.00 | ** | " | ** | ** | • | | |
| Pentachlorophenol | ENDN | 10.0 | ** | •• | ** | * | * | #1 | |
| Phenanthrene | ND | 2.00 | ** | * | * | | •• | ** | |
| Phenol | LNDN | 2.00 | н | * | н | * | ** | ** | |
| Pyrene | ND . | 2.00 | ** | | " | ** | | " | |
| 1,2,4-Trichlorobenzene | ND | 2.00 | | * | ** | | •• | ** | |
| 2.4,5-Trichlorophenol | NDM] | 10.0 | ** | ** | 11 | н | | ** | |
| 2.4,6-Trichlorophenol | NDWS | 2.00 | •• | ** | n | " | n | ** | • |
| Surrogate: 2-Fluorophenol | | 7.82 % | . 10-1 | 110 | . ,, | ** | " | | |
| Surrogate: Phenol-d6 | | 5.18 % | | | " | ,, | " | * | |
| rogate: Nitrobenzene-d5 | | 31.8 % | | | " | " | | • | |
| Surrogate: 2-Fluorobiphenyl | | 31.7% | | | " | • | " | * | |
| Surrogate: 2,4,6-Tribromophenol | | 39.5 % | | | " | * | " | m | |
| Surrogate: p-Terphenyl-d14 | | 47.6 % | | | * | ,, | ** | # | |
| | 11150 | | | | | | | | |

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Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | R Result | eporting Limit | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|-------------------|-------------------|----------|------------|---------|----------|----------|-----------|-------|
| GD-SW-1213-03 (B205134-04) Water | Sampled: 05/09/02 | 15:30 | Received | 05/10/02 (| 9:39 | | | | QC.02 |
| Acenaphthene | ND | 2.00 | ug/l | 1 | 2050219 | 05/13/02 | 05:17:02 | EPA 8270C | |
| Acenaphthylene | ND | 2.00 | ** | 15 | ** | ** | n | ** | |
| Aniline | EJ DN | 2.00 | u | ** | . " | u | н | ** | |
| Anthracene | ND | 2.00 | ** | ** | n | u | n | ** | |
| Benzoic acid | CNDN | 10.0 | ** | ** | •• | " | H | ** | |
| Benz (a) anthracene | ND | 2.00 | • | * | • | ** | n | " | |
| Benzo (a) pyrene | NDU J | 2.00 | ,, | ** | * | ** | ** | | |
| Benzo (b) fluoranthene | TW DN | 2.00 | • | н | r. | u | • | ** | |
| Benzo (ghi) perylene | NDW7 | 2.00 | " | " | • | * | ** | " | |
| Benzo (k) fluoranthene | NDUS | 2.00 | | ** | • | н | ** | ** | |
| Benzyl alcohol | ND | 2.00 | | ** | *1 | | 1* | • | |
| Bis(2-chloroethoxy)methane | ND | 2.00 | | ** | ** | 11 | • | | |
| Bis(2-chloroethyl)ether | ND | 2.00 | | 17 | •• | ** | ** | н | |
| Bis(2-chloroisopropyl)ether | ND | 2.00 | | ** | ** | ** | | | |
| Bis(2-ethylhexyl)phthalate | ND | 10.0 | | ** | н | н | | ** | |
| 4-Bromophenyl phenyl ether | ND | 2.00 | | n | ,, | ** | ., | | |
| Butyl benzyl phthalate | ND | 2.00 | | ** | ** | | н | | |
| | ND ND | 2.00 | | | н | н | ** | | |
| 4-Chloro 3 mechalahanal | | | | u | | · н | | н | |
| 4-Chloro-3-methylphenol | CM DN | 2.00 | | ,, | | | | | |
| 2-Chloronaphthalene | ND | 2.00 | | •• | ,, | | | | |
| 2-Chlorophenol | ND WJ | 2.00 | | | | | ,, | | • |
| 4-Chlorophenyl phenyl ether | ND | 2.00 | | H | ** | | | • | |
| Chrysene | ND | 2.00 | | ** | " | 11 | * | ** | |
| Dibenz (a,h) anthracene | CN DN | 2.00 | | н | ** | " | ** | * | |
| Dibenzofuran | ND | 2.00 | " | ** | • | " | ** | * | |
| 1.2-Dichlorobenzene | ND | 2.00 | " | • | • | * | ** | • | |
| 1,3-Dichlorobenzene | ND | 2.00 | | 11 | *1 | ** | ** | Ħ | _ |
| 1.4-Dichlorobenzene | ND | 2.00 | | ** | | ** | * | н | |
| 3,3'-Dichlorobenzidine | ND | 10.0 | н | n n | " | ** | • | н | |
| 2,4-Dichlorophenol | ND UJ | 2.00 | | ** | ** | n | " | ** | |
| Diethyl phthalate | ND | 2.00 | • | ** | | H | 'n | ** | |
| 2,4-Dimethylphenol | CNDN | 2.00 | , , | ** | * | * | n | ** | |
| Dimethyl phthalate | ND | 2.00 | , , | n | n | n | ** | n | |
| Di-n-butyl phthalate | ND | 10.0 | | ** | ** | ** | ** | ** | |
| 4,6-Dinitro-2-methylphenol | LNDN | 10.0 | | | ** | ** | ** | •• | |
| 2,4-Dinitrophenol | CNDN | 10.0 | | * | ** | | н | ** | |
| 2.4-Dinitrotoluene | ND | 2.00 | | * | | * | •• | н | |
| 2,6-Dinitrotoluene | ND | 2.00 | | | ** | ** | ** | н | |
| Di-n-octyl phthalate | ND U= | 2.00 | | | | ** | и | | |
| Fluoranthene | ND ND | 2.00 | | ** | | | н | ** | |
| Fluorene | ND ND | 2.00 | | 11 | " | ,, | " | н | |
| | | | , | ** | * | n | ** | | |
| Hexachlorobenzene | ND | 2.00 | " | | | | | | |

Great Lakes Analytical

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Andy Johnson

11 Jun 102



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

Reported:

: 1 (II O : C II DD

05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | R Result | eporting Limit | | Dilution | Batch | Prepared | Analyzed | Method | Note |
|----------------------------------|-------------------------|-------------------|-----------|------------|----------|----------|----------|-----------|-------|
| GD-SW-1213-03 (B205134-04) Water | Sampled: 05/09/02 15:30 | | Received: | 05/10/02 (| 09:39 | · _ | · | | QC,02 |
| Hexachlorobutadiene | ND | 2.00 | ug l | 1 | 2050219 | 05 13:02 | 05 17 02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 2.00 | 11 | 11 | ** | ** | ** | | |
| Hexachloroethane | ND | 2.00 | ** | ** | ** | н | н | * | |
| Indeno (1,2,3-cd) pyrene | CN DN | 2.00 | n | ** | ** | 11 | | | |
| Isophorone | ND | 2.00 | ** | " | n | ** | ** | n | |
| 2-Methylnaphthalene | ND | 2.00 | ** | . н | ** | ** | ** | | |
| o-Cresol | NDW. | 2.00 | ** | ** | н . | н | •• | • | |
| m,p-Cresols | ND N.S | 2.00 | ** | | ** | ** | •• | ** | |
| nphthalene | ND | 2.00 | | н | | n | | H | |
| Nitroaniline | ND | 10.0 | | " | ** | ** | ** | * | |
| 3-Nitroaniline | ND | 10.0 | | | | ** | ** | ** | |
| 4-Nitroaniline | ND | 10.0 | | ** | ** | ** | " | ** | |
| Nitrobenzene | ND | 2.00 | | •• | н | | ** | ** | |
| 2-Nitrophenol | NDW7 | 2.00 | | ** | " | " | ** | ** | |
| 4-Nitrophenol | NDVJ | 10.0 | | " | •• | n | ** | •• | |
| N-Nitrosodi-n-propylamine | ND | 2.00 | | ** | ** | ** | ** | • | |
| N-Nitrosodiphenylamine | ND | 2.00 | | ** | | | •• | | |
| Pentachlorophenol | NDWJ | 10.0 | | ** | | • | | ** | |
| Phenanthrene | ND S | 2.00 | | ,, | н | * | ** | н | |
| Phenol | NDWI | 2.00 | | | н | 11 | ** | н | |
| Pyrene | ND | 2.00 | | ** | n | ** | | ** | |
| 1,2,4-Trichlorobenzene | ND | 2.00 | | n | | ** | ** | ** | |
| 2,4,5-Trichlorophenol | LW DN | 10.0 | | 11 | * | tr. | | " | |
| 2,4,6-Trichlorophenol | NDUT | 2.00 | | ** | ** | ** | ** | •• | |
| Surrogate: 2-Fluorophenol | | 9.65 % | | 110 | " | ,, | n | " | |
| Surrogate: Phenol-d6 | | 6.49 % | | | " | " | " | • | |
| rrogate: Nitrobenzene-d5 | | 40.2 % | | | ,, | " | " | • | |
| Surrogate: 2-Fluorobiphenyl | | 36.2 % | | | ,, | ,, | " | ** | |
| Surrogate: 2,4,6-Tribromophenol | | 47.7 % | | | ,, | " | ,, | ** | |
| Surrogate: p-Terphenyl-d14 | | 48.4 % | | | " | " | ,, | ,, | |
| - , , , | | | | | | | | | |

11 Jun 82

Great Lakes Analytical

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Email: info@glalabs.com (847) 808-7776 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A
Project Manager: Lisa Graczyk

N/A **Reported:** Lisa Graczyk 05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Note |
|----------------------------------|-----------------|--------------------|----------|--------------|---------------|----------|----------|-----------|------|
| GD-SW-0809-04 (B205134-05) Water | Sampled: 05/09/ | | Received | : 05/10/02 (| 99:39 | | | | QC,O |
| Acenaphthene | ND 🖊 | | ug/l | t | 2050219 | 05/13/02 | 05/17/02 | EPA 8270C | |
| Acenaphthylene | ND | 2.00 | ** | ** | P. | n | * | * | |
| Aniline | ND | 2.00 | •• | | ** | ** | • | * | |
| Anthracene | ND | 2.00 | ** | D | н | н | ** | | |
| Benzoic acid | ИD | 10.0 | ** | 10 | ** | 11 | н | * | |
| Benz (a) anthracene | ND | 2.00 | u u | * | | * | • | Ħ | |
| Benzo (a) pyrene | ND | 2.00 | 'n | • | n | ** | " | • | |
| Benzo (b) fluoranthene | ND | 2.00 | " | | * | ** | • н | * | |
| Benzo (ghi) perylene | ND | 2.00 | " | ** | | 11 | • | • | - |
| Benzo (k) fluoranthene | ND | 2.00 | ** | * | n | н | | | |
| Benzyl alcohol | ND | 2.00 | | " | | ** | | | |
| Bis(2-chloroethoxy)methane | ND | 2.00 | ** | " | ** | ** | ** | n | |
| Bis(2-chloroethyl)ether | ND | 2.00 | ** | | •• | • | | n | |
| Bis(2-chloroisopropyl)ether | ND | 2.00 | " | " | ,, | ** | | •• | |
| Bis(2-ethylhexyl)phthalate | ND | 10.0 | н | •• | ** | " | • | | |
| 4-Bromophenyl phenyl ether | ND | 2.00 | " | • | ** | " | | | |
| Butyl benzyl phthalate | ND | 2.00 | ** | ** | | n | | | |
| 4-Chloroaniline | ND | 2.00 | | " | | ** | | • | |
| 4-Chloro-3-methylphenol | ND ND | 2.00 | | н | н | | | ** | |
| 2-Chloronaphthalene | ND | 2.00 | 11 | " | ** | ** | | * | |
| | ND ND | 2.00 | ** | 11 | (1 | ** | | н | |
| 2-Chlorophenol | ND | 2.00 | 11 | 11 | | ,, | " | n | |
| 4-Chlorophenyl phenyl ether | | 2.00 | 11 | ,, | | | O | н | |
| Chrysene | ND | | | | ,, | , | | | |
| Dihenz (a,h) anthracene | ND | 2.00 | н | | ,, | | , | | |
| Dibenzofuran | ND | 2.00 | ,, | | " n | " | | - | |
| 1,2-Dichlorobenzene | ND | 2.00 | | | " | | | | |
| 1,3-Dichlorobenzene | ND | 2.00 | | | " | | , | | • |
| 1,4-Dichlorobenzene | ND | 2.00 | ,, | u | " | " | * | • | |
| 3,3'-Dichlorobenzidine | ND | 10.0 | " | " | ** | ** | 17 | " | |
| 2,4-Dichlorophenol | ND | 2.00 | н | " | ** | ** | ** | ** | |
| Diethyl phthalate | ND | 2.00 | " | н . | " | ,, | " | • | |
| 2,4-Dimethylphenol | ND | 2.00 | 11 | * | •• | * | " | •• | |
| Dimethyl phthalate | ND | 2.00 | ** | ** | ** | " | • | •• | |
| Di-n-butyl phthalate | ND | 10.0 | * | ** | ** | n | 14 | • | |
| 4,6-Dinitro-2-methylphenol | ND | 10.0 | n | ** | ** | ** | " | " | |
| 2,4-Dinitrophenol | ND | 10.0 | " | н | ** | ** | * | ** | |
| 2,4-Dinitrotoluene | ND | 2.00 | ** | 11 | 11 | ** | ** | •• | |
| 2,6-Dinitrotoluene | ND | 2.00 | | ** | n | 11 | ** | ** | |
| Di-n-octyl phthalate | ND | 2.00 | ** | •• | | ** | u | •• | |
| Fluoranthene | ND | 2.00 | ** | ** | " | • | n | н | |
| Fluorene | ND N | 2.00 | | | | ,, | •• | •• | |
| Hexachlorobenzene | ND N | | | | | | | | |

Great Lakes Analytical

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety:

Andy Johnson

11 Jun 02



Email: info@glalabs.com (847) 808-7766 FAX (847) 808-7772

Tetra Tech EMI - IL

Chicago IL, 60601

Project: Gary Development Landfill

200 E. Randolph Suite 4700

Project Number: N/A Project Manager: Lisa Graczyk

Reported: 05/21/02 08:54

Semivolatile Organic Compounds by EPA Method 8270C

Great Lakes Analytical

| Analyte | R Result | eporting Limit | | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|-------------------------|-------------------|--------------------------|----------|---------|----------|---|-----------|-------|
| GD-SW-0809-04 (B205134-05) Water | Sampled: 05/09/02 16:00 | | Received: 05/10/02 09:39 | | | | | | QC,02 |
| Hexachlorobutadiene | CN DN | 2.00 | ug/l | 1 | 2050219 | 05/13/02 | 05/17/02 | EPA 8270C | |
| Hexachlorocyclopentadiene | ND | 2.00 | ** | n | * | 11 | ** | ** | |
| Hexachloroethane | ND | 2.00 | ** | • | | H | ** | ** | |
| Indeno (1,2,3-cd) pyrene | ND | 2.00 | •• | • | * | r | •• | *1 | |
| Isophorone | ND | 2.00 | • | • | • | • | ** | •• | |
| 2-Methylnaphthalene | ND | 2.00 | | • | ** | * | ** | • | |
| o-Cresol | ND | 2.00 | ** | | ** | ** | ** | 11 | |
| m,p-Cresols | ND | 2.00 | ** | • | * | n | P | 11 | |
| .phthalene | ND | 2.00 | | • | ** | * | ** | ** | |
| 2-Nitroaniline | ND | 10.0 | •• | ** | ** | •• | * | ** | |
| 3-Nitroaniline | ND | 10.0 | • | н | " | •• | н | • | |
| 4-Nitroaniline | ND | 10.0 | ,, | | " | н | | ** | |
| Nitrobenzene | ND | 2.00 | " | ** | " | 11 | | ** | |
| 2-Nitrophenol | ND | 2.00 | | ** | " | " | | •• | |
| 4-Nitrophenol | ND | 10.0 | * | н | ** | ** | н | ** | |
| N-Nitrosodi-n-propylamine | ND | 2.00 | ** | " | •• | ** | n | 11 | |
| N-Nitrosodiphenylamine | ND | 2.00 | n | " | ** | ** | •• | | |
| Pentachlorophenol | ND | 10.0 | •• | | ** | •• | •• | u · | |
| Phenanthrene | ND | 2.00 | •• | ** | | •• | ** | | |
| Phenol | ND | 2.00 | • | | * | ** | • | ** | |
| Pyrene | ND | 2.00 | ** | •• | ** | | ** | | |
| 1,2,4-Trichlorobenzene | ND | 2.00 | ** | * | ,, | ** | •• | | |
| 2,4,5-Trichlorophenol | ND V | 10.0 | ** | ** | ** | " | | •• | |
| 2,4,6-Trichlorophenol | EW DN | 2.00 | D | ** | h | ** | | | |
| Surrogate: 2-Fluorophenol | <u></u> | 9.35 % | 10-11 | 0 | ,, | " | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | н | - |
| rogate: Phenol-d6 | | 6.85 % | | | " | " | ,, | " | |
| -rrogate: Nitrobenzene-d5 | | 44.2 % | | | " | ,, | ,, | " | |
| Surrogate: 2-Fluorobiphenvl | | 40.2 % | | 10 | " | ,, | ,, | ** | |
| Surrogate: 2,4,6-Tribromophenol | | 56.8 % | 10-11 | | " | " | " | n | |
| Surrogate: p-Terphenyl-d14 | | 70.8 % | | | " | ,, | ,, . | M | |
| | | | | - | | | | | |

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Notes and Definitions

One or more internal standard recoveries were below the method specified acceptance criteria.

QC The result for one or more quality control measurements associated with this sample did not meet the laboratory and or source

method acceptance criteria.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

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APPENDIX C REMOVAL COST PROJECTIONS

HAS BEEN REDACTED (5 PAGES)

APPENDIX D LIST OF WITNESSES

(One Page)

LIST OF WITNESSES

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